CONTENTS

TRADE NAME	MODEL	SET AND FOLDER No.
Admiral	5S21AN, 5S22AN, 5S23AN (Ch. 5C3)	197-2
Ambassador	T1853, A, AK, AV Tel. Rec.	197-3
Arvin	7210CB-UHF, 7210CM-UHF, 7212CFP-UHF, 7212MEA-UHF, 7214CM-UHF, 7216CB-UHF, 7218CB-UHF, 7218CM-UHF, 7219CM-UHF, (Ch. TE-341-2) Tel. Rec. Prod. Chg. Bul. 63	197-1
Crescent	500 Series Record Changer	197-4
Emerson	721D, 728D (Ch. 120166-D) Tel. Rec.	197-5
Firestone	13-G-107, 13-G-108, 13-G-109, A, 13-G-122 Tel. Rec.	197-6
Kaye-Halbert	014, 024, 044, 046, 074, 076, 077, 424, 714, 724, 744, 745, 777, 914 (Ch. 253) Tel. Rec. Prod. Chg. Bul. 63	197-1
Motorola	BK2A, BK2M, CT2A, CT2M, GMT2A, GMT2M, HJ2A, HJ2M, HN2A, HN2M, KR2A, KR2M, OE2A, OE2M, PC2A, PC2M, PD2A, PD2M, SR2A, SR2M, 702, 802 (Ch. 2A, 2M, BT-2, P6-2, P8-2)	197-7
Motorola	21C1, B, 21F2, B, 21F3, B, 21K4, A, B, W, 21K5, B, 21K6, 21K7 (Ch. TS-292A, B), 21T3 (Ch. TS-501A, B), 21T4A, EA, 21T5A, BA (Ch. TS-324A, B) Tel. Rec. Prod. Chg. Bul. 63	197-1
RCA Victor	2X61 (Ch. RC-1080C), 2X62 (Ch. RC-1080D)	197-8
RCA Victor	21T159DE, 21T174DE, 21T178DE, 21T179DE (Ch. KCS68F) Tel. Rec.	197-9
RCA Victor	45-EY-26 (Ch. RS-138L, M)	197-10
Sentinel	1U-454, 1U-455, 1U-456, 1U-457, 454, 455, 456, 457 Tel. Rec. Prod. Chg. Bul. 63	197-1
Silvertone	2022 (Ch. 132.027)	197-11
Sparton	350, 351, 1300, 1301 (Ch. 6L3)	197-12
Truetone	D2145	197-13
Truetone	D2255	197-14

SUPPLEMENTAL DATA TO PHOTOFACT FOLDER 8 IN SET 146

Ch. 253

In later production of Kaye-Halbert Chassis 253 the following changes were made.

The two 5Y3GT, low voltage Rectifiers, were replaced by one 5U4G tube. In the revised circuit each plate of the 5U4G tube replaces one of the 5Y3GT tubes.

The horizontal output circuit was changed by adding a width coil and a new Horizontal Output Transformer (Part #C2121). A partial schematic below shows the revised circuit.

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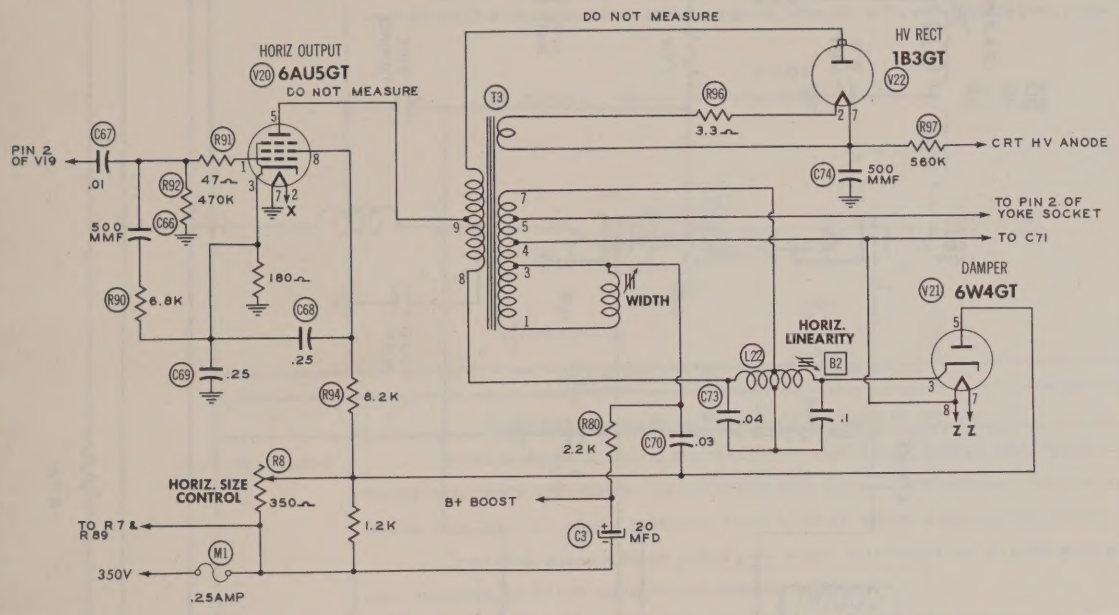
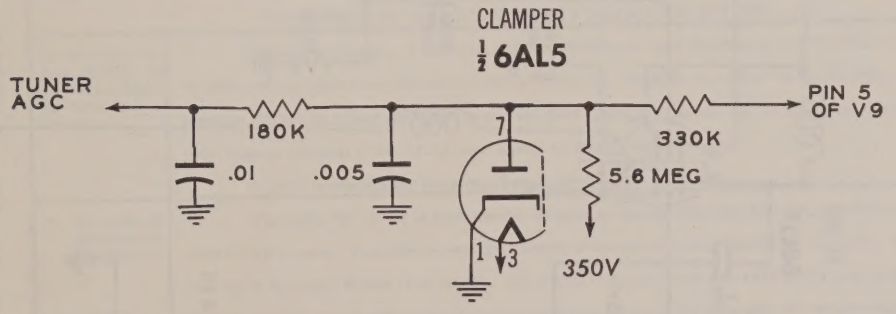


To increase contrast, R39, located in the cathode circuit of the Video Amplifier, V8, was changed from 330Ω to 220Ω.

The Video Detector, V6, was replaced by a 1N60 or 1N64 germanium diode and a delayed AGC circuit was added for tuner bias. The ½ of the 6AL5 previously used as the Video Detector was used as AGC Clamper in the new circuit. A partial schematic showing this circuit is given below.



A Cascode tuner was also used in later production. A schematic of this tuner is given on the reverse side. For alignment procedure refer to Photofact Folder 8, Set 146. In those sets using the delayed AGC circuit as shown above, connect a jumper between the junction of C8 and R30 to pin 7 (plate) of the AGC clamper and connect a -4 volt bias battery to the AGC line.

KAYE-HALBERT MODELS 014, 024, 044, 046, 074 076, 077, 424, 714, 724, 744, 745, 777, 914 (Ch. 253)

(Continued on Reverse Side)

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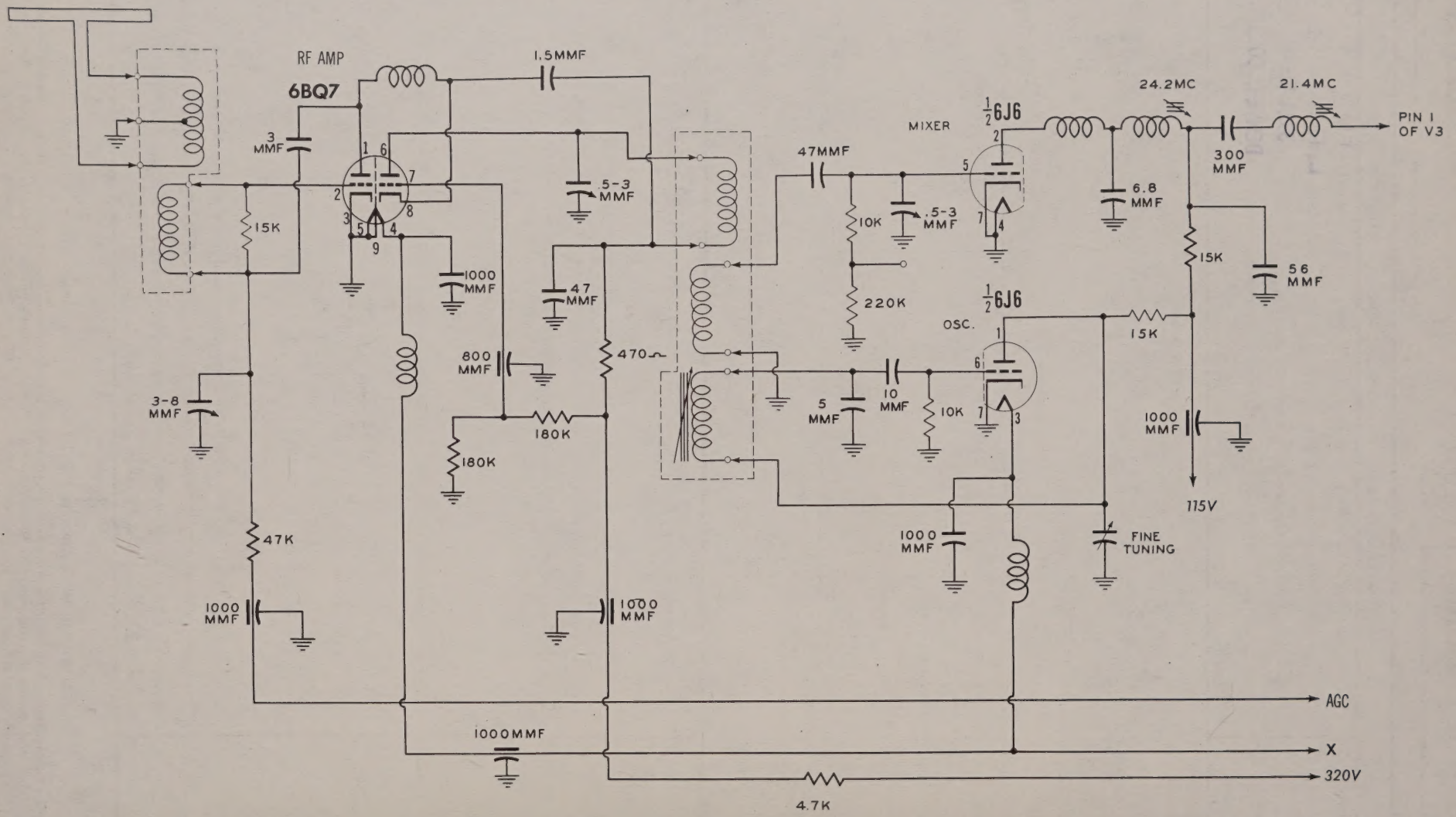

RF AMP
6BQ7
1.5MMF
3 MMF
.5-3 MMF
15K
1000 MMF
47 MMF
800 MMF
470
180K
180K
3-8 MMF
47K
1000 MMF
1000 MMF
MIXER
1/2 6J6
47MMF
10K
.5-3 MMF
220K
OSC.
1/2 6J6
5 MMF
10 MMF
10K
24.2MC
21.4MC
PIN 1 OF V3
300 MMF
6.8 MMF
15K
56 MMF
15K
1000 MMF
115V
1000 MMF
FINE TUNING
AGC
1000MMF
X
320V
4.7K

SENTINEL MODELS 1U-454, 1U-455, 1U-456, 1U-457, 454, 455, 456, 457

SUPPLEMENTAL DATA TO PHOTOFACT FOLDER 17 IN SET #191

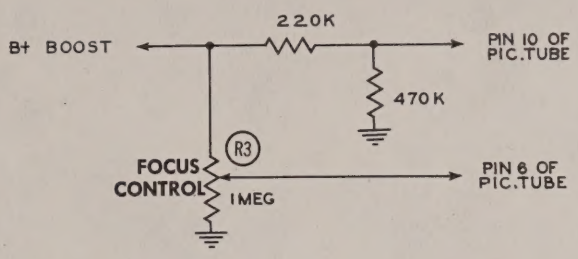
In later production of Sentinel Models 1U-454, 1U-455, 1U-456, 1U-457, 454, 455, 456 and 457 the following production changes were made:

TO PROTECT VIDEO DETECTOR CRYSTAL

To eliminate premature crystal detector failure caused by surge current in the grid circuit of the Video Amp., V6, a 270Ω resistor was added between the grid (pin 1) of V6 and video coupling capacitor, C35.

TO IMPROVE CONTRAST RANGE

Two resistors were added to the B+ boost line to lower the voltage on the accelerating anode of the picture tube. A 220KΩ resistor was added in series with the B+ boost line to the accelerating anode (pin 10) of the picture tube (red lead). A 470KΩ resistor was added from the junction of the 220KΩ resistor added above and pin 10 of the picture tube to ground. A partial schematic of the new circuit is given below.



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(Continued on Reverse Side)

ARVIN MODELS 7210CB-UHF, 7210CM-UHF, 7212CFP-UHF, 7212MEA-UHF, 7214CM-UHF, 7216CB-UHF, 7218CB-UHF, 7218CM-UHF, 7219CM-UHF (Ch. TE-341-2)

SUPPLEMENTAL DATA TO PHOTOFACT FOLDER 4 IN SET 188

Ch. TE-341-2

In later production of Arvin Models 7210CB-UHF, 7210CM-UHF, 7212CFP-UHF, 7212MEA-UHF, 7214CM-UHF, 7216CB-UHF, 7218CB-UHF and 7219CM- UHF, (Ch. TE-341-2) was used. This chassis is identical to Ch. TE-341-1, covered in Photofact Folder 4, Set 188, except for the following revisions.

C4 and R140, located in the low voltage power supply, were omitted and all points which previously were connected to the 125 volt source are now connected to 145 volts.

R93, V12 grid resistor, was changed from 330KΩ to 470KΩ.

The horizontal hold control, R4, was changed from 30KΩ to 50KΩ, and R125, in series with the control, was changed from 91KΩ to 100KΩ.

A 56KΩ resistor and a .01MFD capacitor connected in parallel, were added in series with the lead from pin 1 of V11 to the junction of C73 and R51.

MOTOROLA MODELS 21C1, B, 21F2, B, 21F3, B, 21K4, A, B, W, 21K5, B, 21K6, 21K7 (Ch. TS-292A, B), 21T3 (Ch. TS-501A, B), 21T4A, EA, 21T5A, BA (Ch. TS-324A, B)

SUPPLEMENTAL DATA TO PHOTOFACT FOLDER 13 IN SET #191

Ch. TS-292A-00 thru TS-292A-04 TS-324A-00 thru TS-324A-04 TS-501A-00	Production changes in Motorola Chassis TS-292A-00 thru TS-292A-04 and TS-324A-00 thru TS-324A-04 are covered in Photofact Folder 13 in Set 191. Original production of Ch. TS-501A was the same as TS-324-04 except the Tone Control and Pilot Light are omitted and the TT-45 tuner was used. This tuner is identical to the TT-44 tuner except for Shaft Length. In later production the following changes were made:
Ch. TS-292B-00 TS-324B-00 TS-501B-00	The suffix "B" on the chassis number designates that an auto type filament transformer (Part #25B721779) is used. In earlier production filament transformer part #25B720749 was used. This change is covered in Photofact Folder 13 in Set 191. For replacement purposes part #25B721779 may be used to replace the earlier unit providing the circuit is revised as shown in the schematic for an auto transformer.
Ch. TS-292B-01 TS-324B-01 TS-501B-00	The fourth Video IF Transformer was changed to part #24K720421. This unit is electrically identical to part #1V720997 originally used except L20 is included in the assembly.
Ch. TS-292B-02 TS-501B-01	To eliminate vertical flutter due to line voltage variations, C4, was changed from 20MFD to 10MFD.
Ch. TS-292B-03 TS-501B-02	C47, focus anode by-pass capacitor, was omitted and a 100KΩ, 1 watt, resistor was added between the center arm of the focus control and pin 6 of the picture tube. This value is not critical and in some sets the resistor may be 120KΩ or 150KΩ.
	In addition to the above in some sets the Horizontal Hold Control, R3, may be 150KΩ and R47 and R48, Ratio Detector Diode Load Resistors, may be 6.2KΩ.

TO INCREASE THE RANGE OF THE VERTICAL SIZE CONTROL

A 2.2Meg resistor was added from the open side of the vertical size control, R5, to ground.

ALIGNMENT CHANGE

The signal generator frequency in Step 1 of the Video IF Alignment chart should be 24.3MC and in Step 3 the signal generator frequency should be 22.9MC.

COMPONENT CHANGE

In some sets R29, 3rd Video IF cathode resistor, was changed to 220Ω.

SENTINEL MODELS 1U-454, 1U-455, 1U-456, 1U-457, 454, 455, 456, 457

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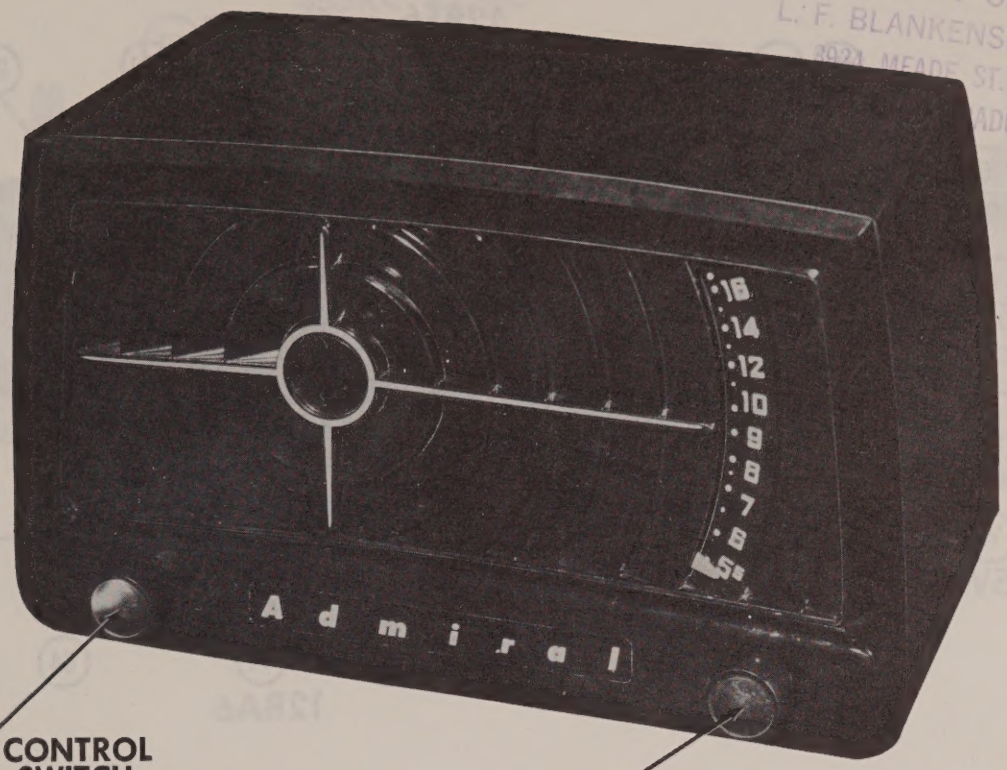
ADMIRAL
CHASSIS 5C3



VOLUME CONTROL
ON-OFF SWITCH

TUNING CONTROL

ADMIRAL
CHASSIS 5C3

ADMIRAL MODEL 5S22AN

TRADE NAME	Admiral Models 5S21AN, 5S22AN, 5S23AN (Ch. 5C3)
MANUFACTURER	Admiral Corp., 3800 W. Cortland St., Chicago 47, Ill.
TYPE SET	AC/DC Operated AM Superheterodyne Receiver
TUBES (Five)	Types 12BE6 Conv., 12BA6 IF Amp., 12AV6 Det.-AVC-AF Amp., 50C5 Audio Output, 35W4 Rectifier
POWER SUPPLY	110-120 Volts AC/DC
RATING	.25 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	535-1620 KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer, if available. If not, connect a .1MFD capacitor in series with low side of signal generator and B-. Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting. With tuning gang fully closed center the pointer slide to the bottom hole in pointer slide bracket.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to stator of antenna section of tuning gang. Low side to B-.	455KC (400~Mod.)	Tuning gang fully open	Across voice coil	A1, A2, A3, A4	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
2.	"	"	1620 KC	"	"	A5	"
3.		Loop	1400 KC	Tune to 1400KC signal	"	A6	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.

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PARTS LIST AND DESCRIPTIONS

ADMIRAL
MODEL 5S21AN (Ch. 5C3)

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RTMA BASE TYPE	INSTALLATION NOTES
		ADMIRAL PART No.	STANDARD REPLACEMENT		
V1	Converter	12BE6	12BE6	7CH	
V2	IF Amplifier	12BA6	12BA6	7BK	
V3	Det.-AVC-AF Amp.	12AV6	12AV6	7BT	
V4	Audio Output	50C5	50C5	7CV	
V5	Rectifier	35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	ADMIRAL PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C1A	50	150	67A10	PRS150/50-30		BRD5315A		2N520	TVA-2450	Red
B	30	150								Yellow
C2	.05	200	64B1-7	P288-05	DF-503	PJ2S5		PT415	2TM-S5	
C3A	220									
B	.005									
C	.005		♦63B6-7		♦PC-151		♦1408-02		♦103C5	
D	250									
E										
C4	.02	400	64B8-11	P488-02	DF-203	PTE4S2		PT412	4TM-S2	
C5	.047	400	65A13-5	489ZX-05		PJ4S5		PT4147	4TM-S47	
C6	.05	400	64B1-7	P488-05		PJ4S5		PT415	4TM-S5	Note 1

Note 1. Not used in all Models.

♦ Items C3A, C3B, C3C, C3D, C3E, R5A, R5B, R5C are combined in one unit. When replacing items separately C3D and C3E should total 250MMF.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	ADMIRAL PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	
R1A	1 Meg	½	75B1-52	Q13-137	AG-63-Z	BSK-70-S	U-53	Volume
B	Shaft		Not Req.	Not Req.	KSS-3	Not Req.	Not Req.	Attach to R1A
C	Switch		Not Req.	76-1	SWB	Not Req.	US-26	Attach to R1A

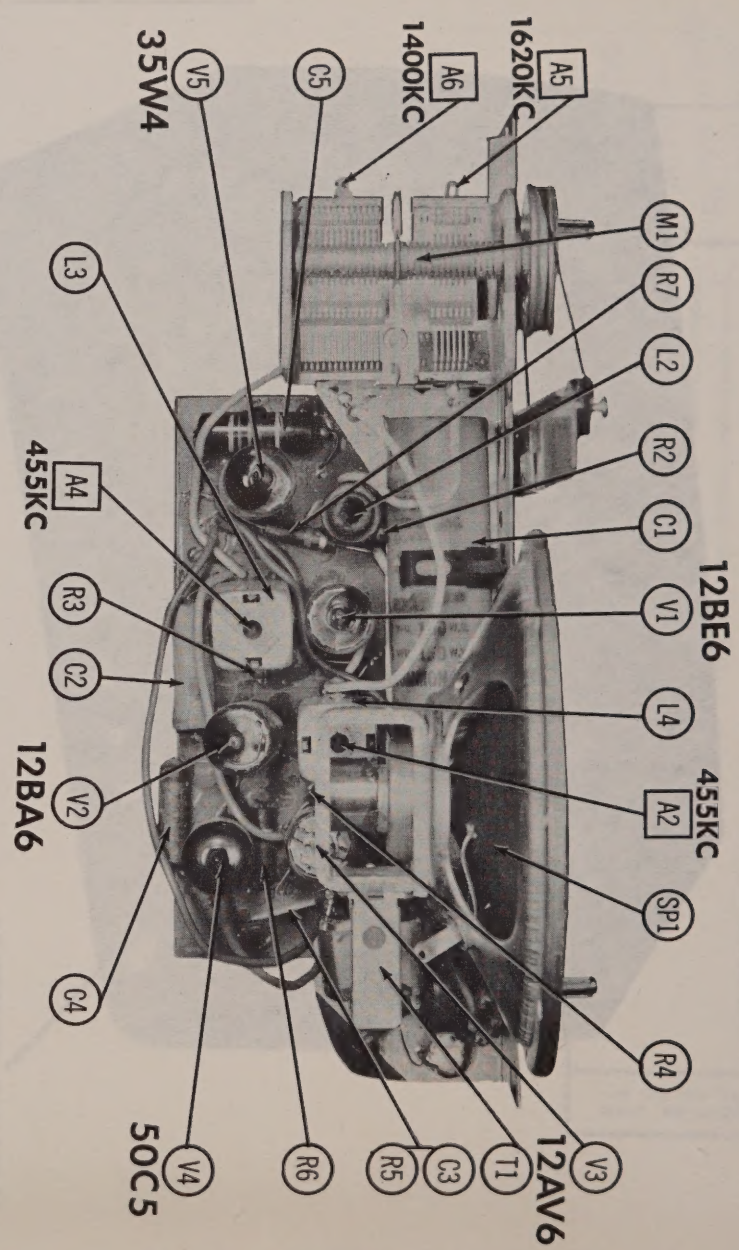
RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	ADMIRAL PART No.	IRC PART No.	
R2	22KΩ	½	60B8-223	BTS-22K	
R3	150Ω	½	60B8-151	BTS-150	
R4	2.2Meg	½	60B8-225	BTS-2.2Meg	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	ADMIRAL PART No.	IRC PART No.	
R5A	6.8Meg	½	♦63B6-7	BTS-6.8Meg	
B	470KΩ	½		BTS-470K	
C	470KΩ	½		BTS-470K	
R6	150Ω	1		BTA-150	
R7	1000Ω	1	60B28-2	BTA-1500	

♦Items R5A, R5B, R5C, C3A, C3B, C3C, C3D, C3E are combined in one unit.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA					NOTES
	IMPEDANCE		DC RES.		ADMIRAL PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	
	PRI.	SEC.	PRI.	SEC.						
T1	2.46KΩ	3.5Ω	154Ω	.46Ω	98A4	A-3332 ①	A-3025 ①	RO-301 ①	S-1X ①	① Bend mounting tabs down, file out slots, mount on original mounting bracket.

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	ADMIRAL PART No.	JENSEN PART No.	QUAM PART No.	
SP1	5"	PM	3.5Ω	78B26-3	ST-105 Mod. P5-X	5A07	

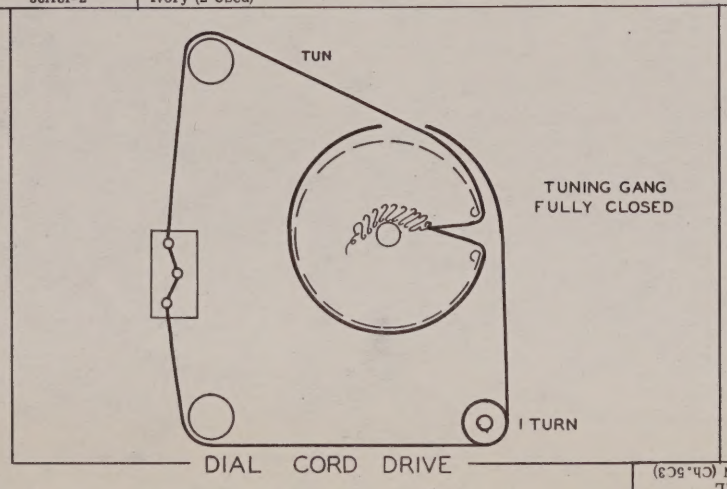
COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA		NOTES
		PRI.	SEC.	ADMIRAL PART No.	MERIT PART No.	
L1	Loop Ant.	3.2Ω		69C159		
L2	Osc. Coil	6.8Ω		69A158-1 *		Tapped @ 6.5Ω
L3	Input IF	17Ω	17.5Ω	72B28-63	BC-352	
L4	Output IF	17Ω	17.5Ω	72B28-63	BC-353	

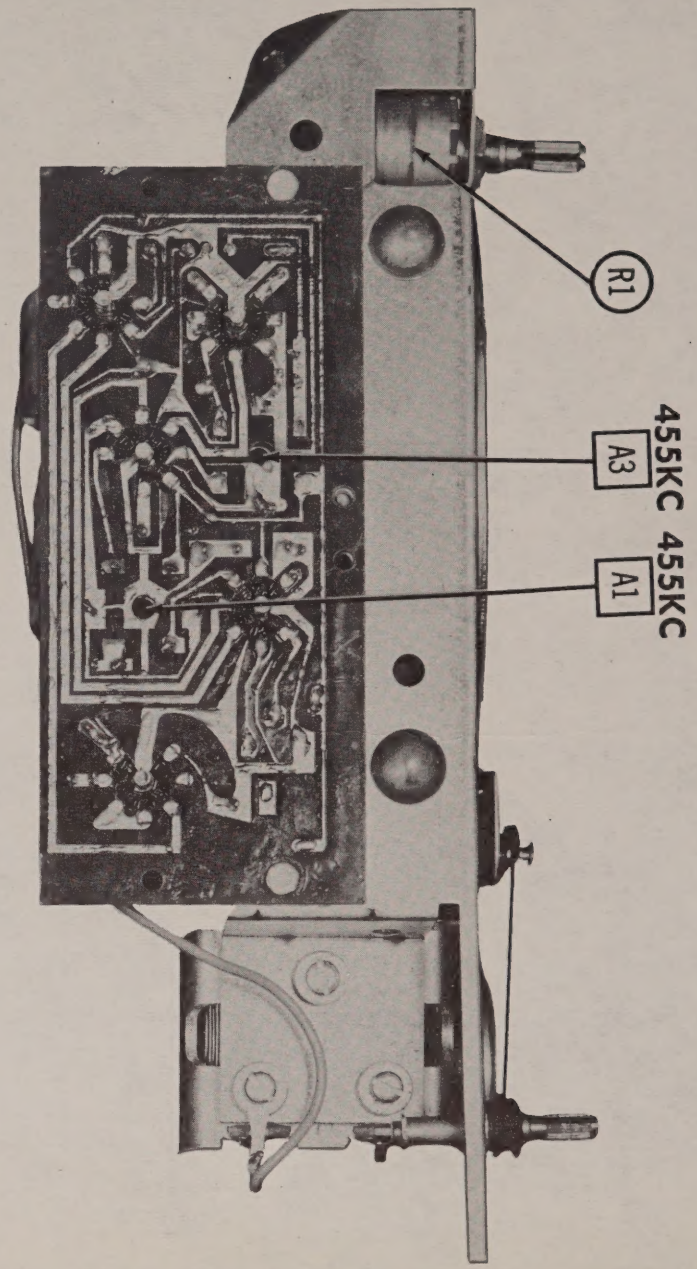
* Part No. includes 22KΩ resistor, R2.

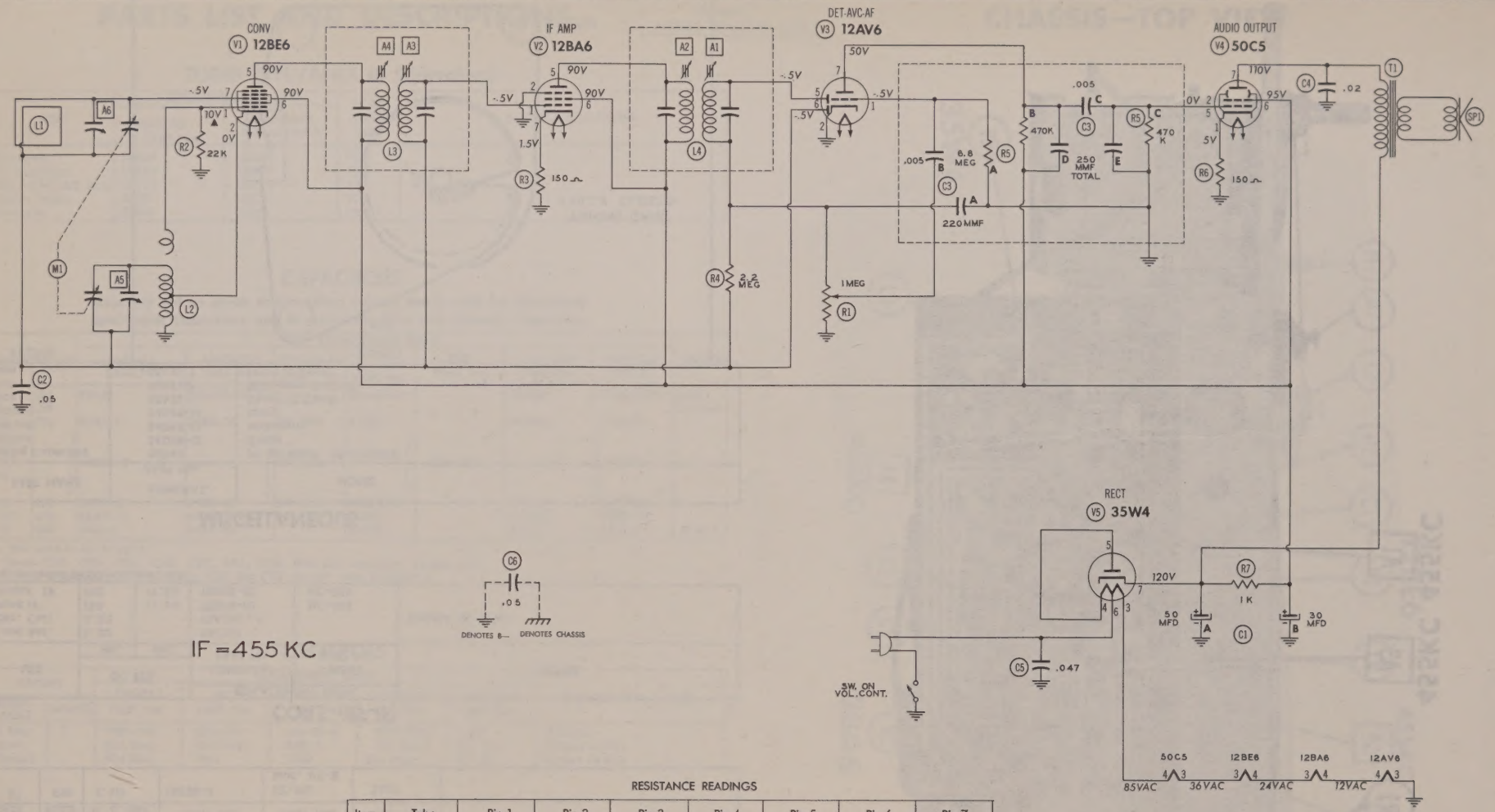
MISCELLANEOUS

ITEM No.	PART NAME	ADMIRAL PART No.	NOTES
M1	Tuning Capacitor	68B48	36-453MMF, 26-142MMF
	Cabinet	34D26-12	Ebony
	Cabinet	34D26-13	Mahogany
	Cabinet	34D26-14	Ivory
	Knob	33A81-1	Ebony (2 Used)
	Knob	33A81-3	Mahogany (2 Used)
	Knob	33A81-2	Ivory (2 Used)



CHASSIS—BOTTOM VIEW





IF = 455 KC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	12BE6	22KΩ	6.8Ω	0Ω	12Ω	†1KΩ	†1KΩ	3.2Meg
V 2	12BA6	3.2Meg	0Ω	24Ω	12Ω	†1KΩ	†1KΩ	150Ω
V 3	12AV6	6.8Meg	0Ω	36Ω	24Ω	1 Meg	3.2Meg	†470KΩ
V 4	50C5	150Ω	470KΩ	36Ω	86Ω	470KΩ	†1KΩ	†154Ω
V 5	35W4	INF	INF	86Ω	120Ω	120Ω	110Ω	400KΩ

▲ TAKEN WITH VACUUM TUBE VOLTMETER
† MEASURED FROM PIN 7 OF V5

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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197-2

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

PHOTOFACT* Folder

AMBASSADOR
MODELS T1853, A, AK, AV

L. F. [illegible]
3000 WADE ST.
DENVER, COLORADO

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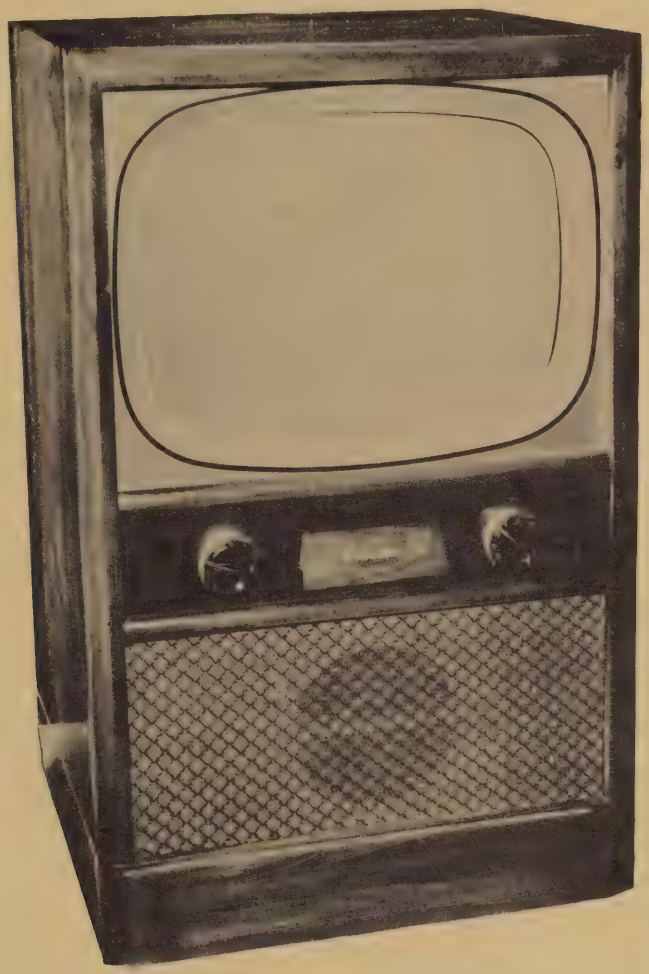

MODEL T1853AV

AMBASSADOR
MODELS T1853, A, AK, AV

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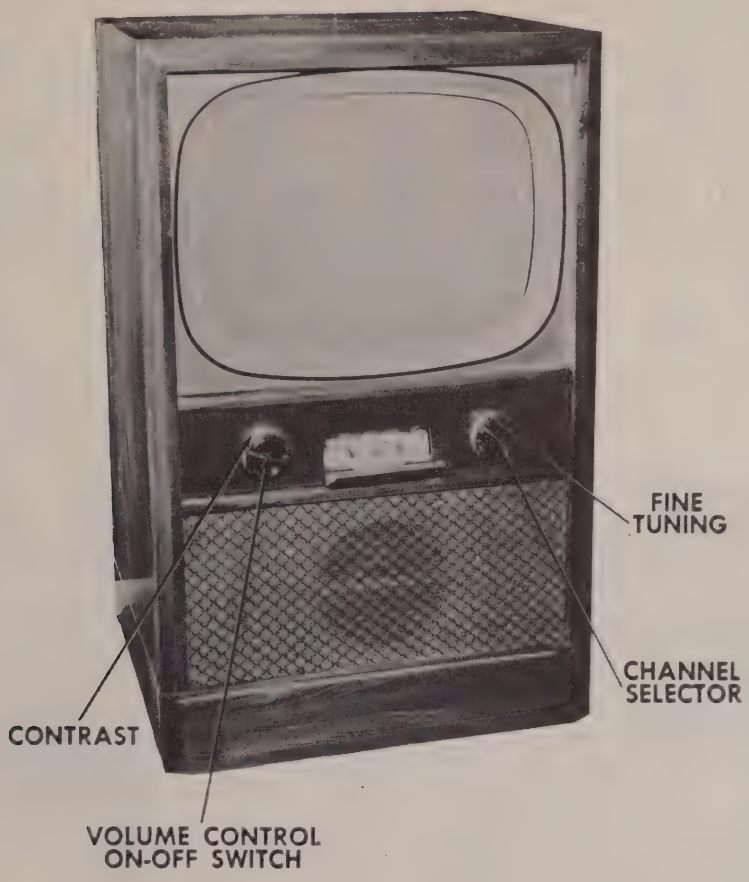
DATE 3-53 SET 197 FOLDER 3



AMBASSADOR
MODELS T1853, A, AK, AV

AMBASSADOR T-1853AV

TRADE NAME	Ambassador Models T-1853, T-1853A, T-1853AC, T-1853AK, T-1853AV
MANUFACTURER	Allied Pur. Corp., 401 5th. Ave. , New York 16, New York
TYPE SET	Television Receiver
TUBES	Nineteen

POWER SUPPLY 110-120 Volts AC-60 Cycle RATING 1.74Amp. @ 117 Volts AC
TUNING RANGE- Channels 2 thru 13, Video IF 26.75MC, Sound IF 22.25MC (Intercarrier)

INDEX

Alignment Instructions 6, 7
Disassembly Instructions 18
Horizontal Sweep Circuit Adjustments 13
Parts List and Descriptions 14, 15, 16
Photographs
Cabinet - Rear View 13
Capacitor and Alignment Identification 4, 9
Chassis - Top View 3
RF Tuner 10, 11
Photographs (Cont)
Resistor and Inductor Identification 12, 17
Resistance Measurements 8
Schematic 2
Servicing in the Field 18
Tube Failure Check Chart 5
Tube Placement Chart (Bottom View) 8
Tube Placement Chart (Top View) 5

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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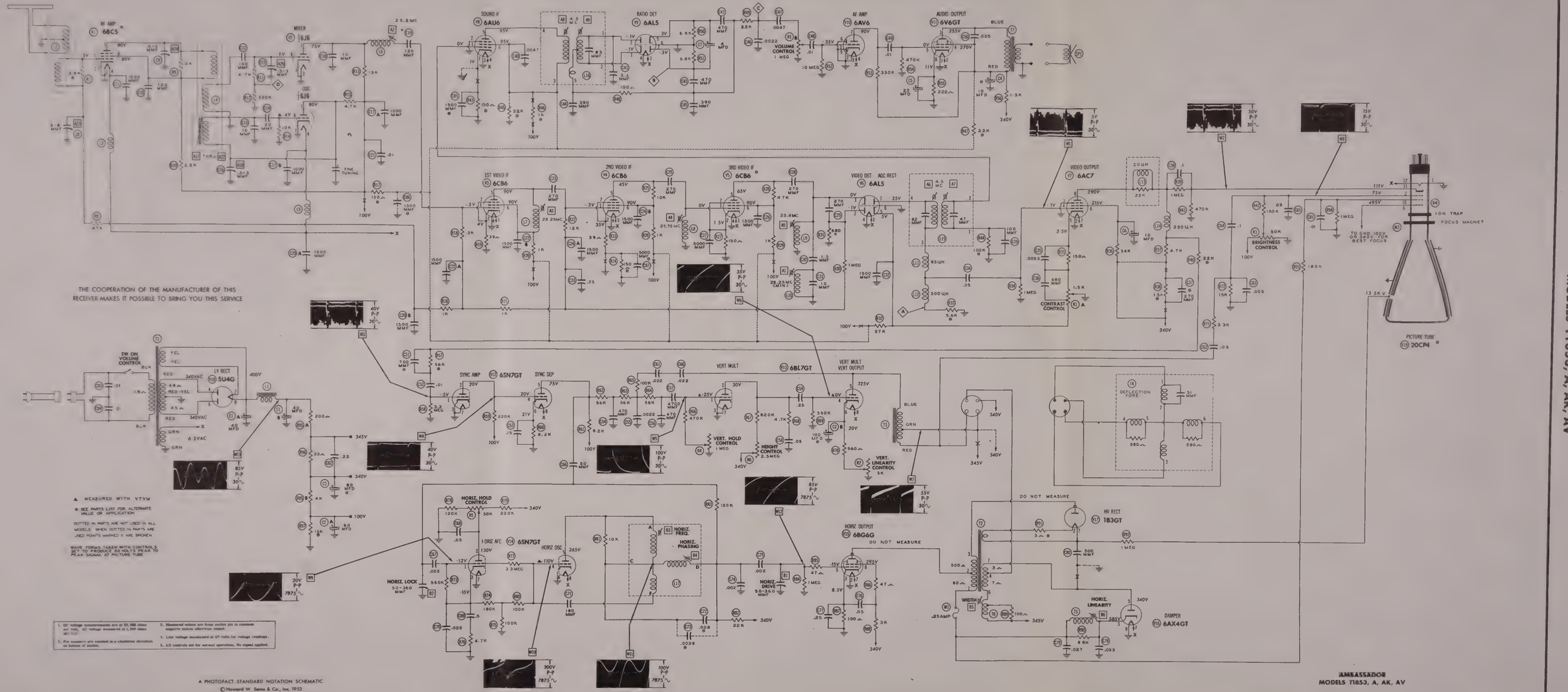
RF AMP V1 6BC5
MIXER V1 6J6
OSC 6J6
2.5-2 MC
SOUND IF V16 6AU6
RATIO DET V3 6AL5
AF AMP V10 6AV6
AUDIO OUTPUT V11 6V6GT
VOLUME CONTROL 1 MEG
BLUE
1ST VIDEO IF V2 6CB6
2ND VIDEO IF V4 6CB6
3RD VIDEO IF V5 6CB6
VIDEO DET AGC RECT V6 6AL5
VIDEO OUTPUT V7 6AC7
CONTRAST CONTROL
BRIGHTNESS CONTROL
ION TRAP
FOCUS MAGNET
TO GND 100V OR 345V FOR BEST FOCUS
PICTURE TUBE V18 20CP4
13.5K V
SW ON VOLUME CONTROL
LV RECT V18 5U4G
6.3VAC
SYNC AMP V13 6SN7GT
SYNC SEP
VERT MULT
VERT MULT V13 6BL7GT
VERT MULT VERT OUTPUT
VERT. HOLD CONTROL 1 MEG
HEIGHT CONTROL 2.5MEG
VERT. LINEARITY CONTROL 5K
DEFLECTION YOKE
HORIZ. HOLD CONTROL
HORIZ AFC V14 6SN7GT
HORIZ OSC
HORIZ. FREQ.
HORIZ. PHASING
HORIZ. LOCK 50-350 MMF
HORIZ. DRIVE 50-350 MMF
HORIZ OUTPUT V15 6BG6G
DO NOT MEASURE
HV RECT V17 1B3GT
WIDTH
HORIZ. LINEARITY
DAMPER V19 6AX4GT
.25AMP
THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE
▲ MEASURED WITH VTVM
● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
DOTTED IN PARTS ARE NOT USED IN ALL MODELS. WHEN DOTTED IN PARTS ARE USED POINTS MARKED X ARE BROKEN.
WAVE FORMS TAKEN WITH CONTROLS SET TO PRODUCE 50 VOLTS PEAK TO PEAK SIGNAL AT PICTURE TUBE
1. DC voltage measurements are at 20,000 ohms per volt, AC voltage measured at 1,000 ohms per volt.
2. Measured values are from socket pin to common negative unless otherwise stated.
3. Pin numbers are counted in a clockwise direction as bottom of socket.
4. Line voltage maintained at 121 volts for voltage readings.
5. All controls set for normal operation, No signal applied.
A PHOTOFACT STANDARD NOTATION SCHEMATIC
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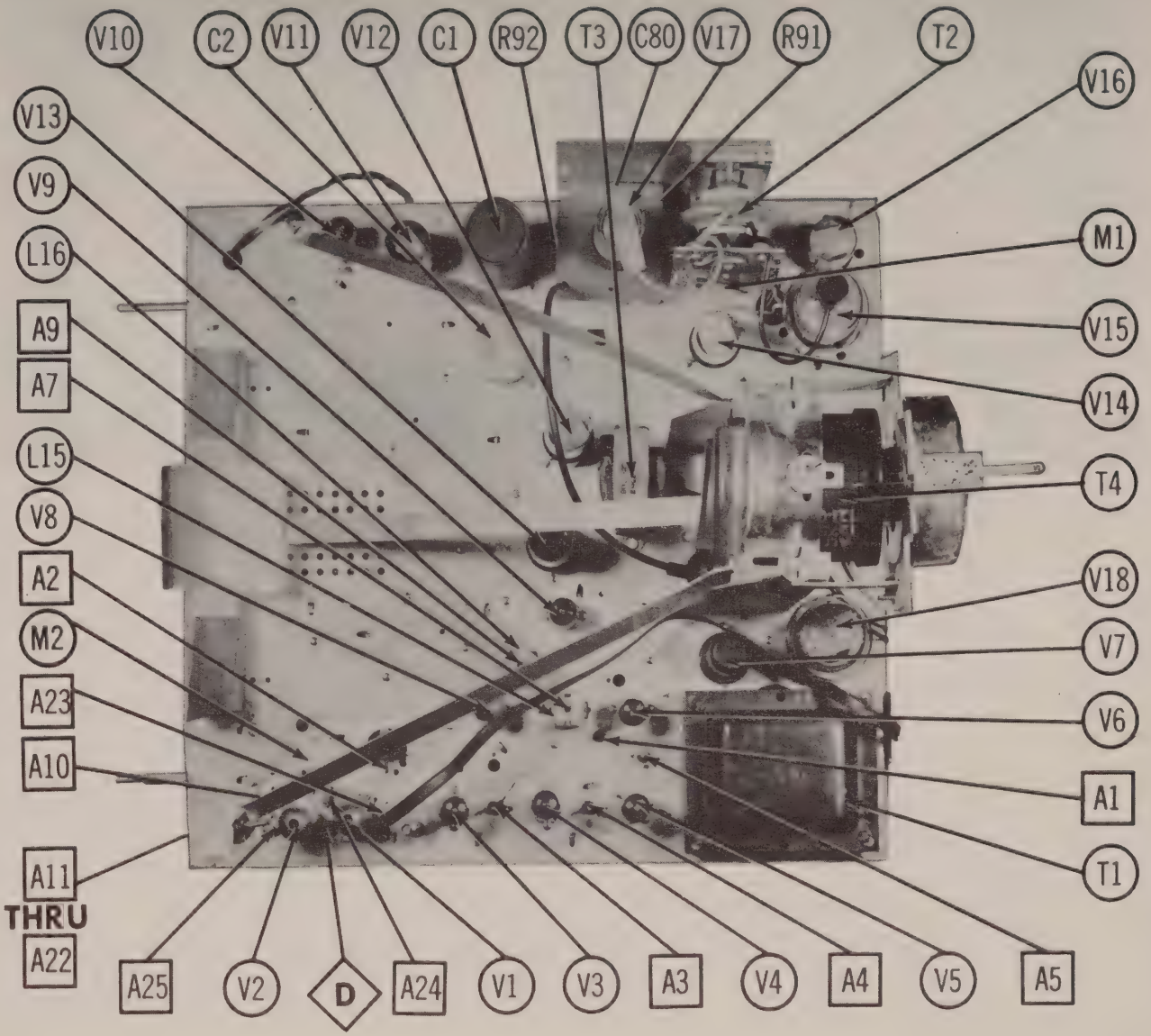
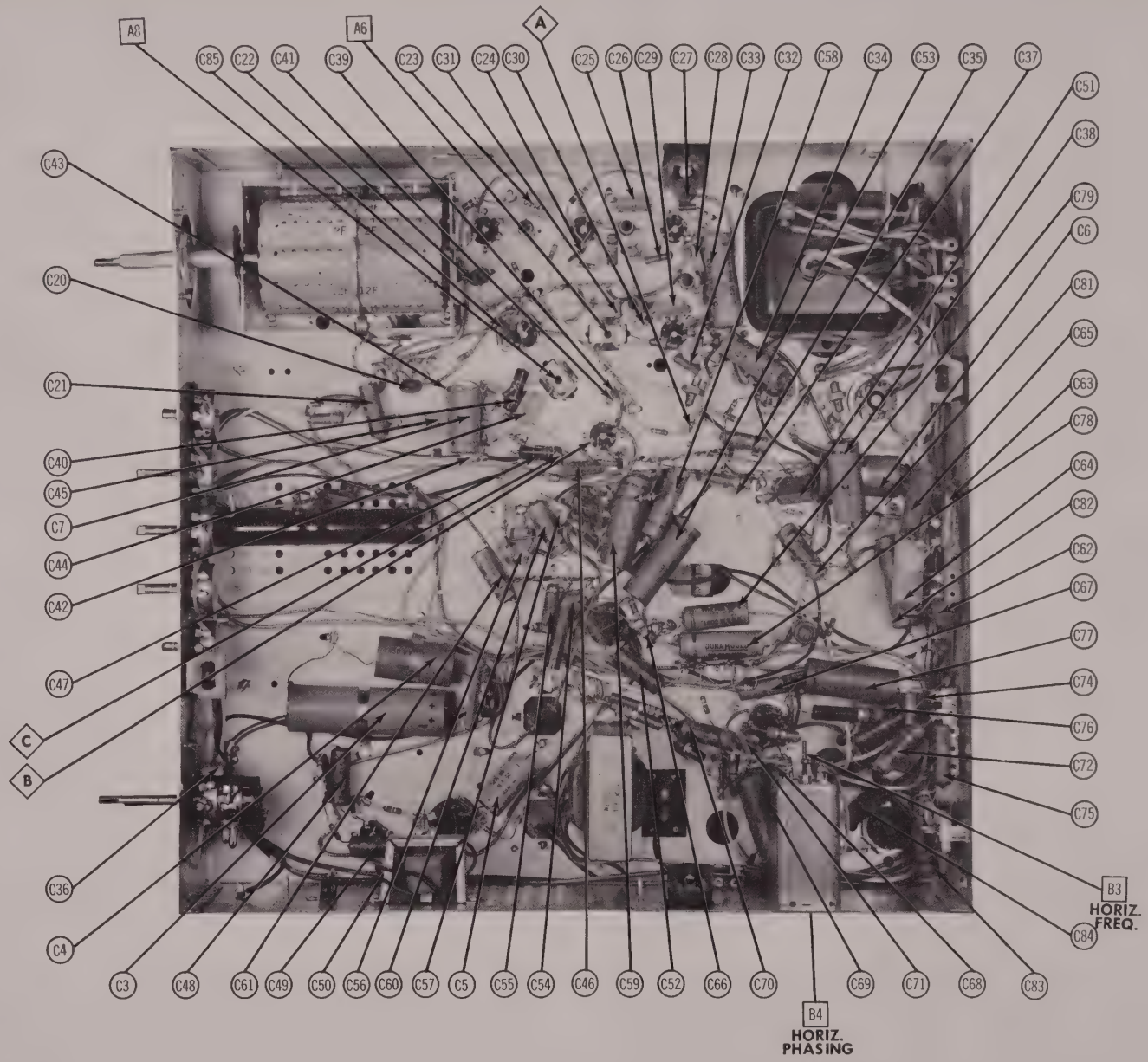
AMBASSADOR MODELS 11853, A, AK, AV

AMBASSADOR
MODELS 11853, A, AK, AV



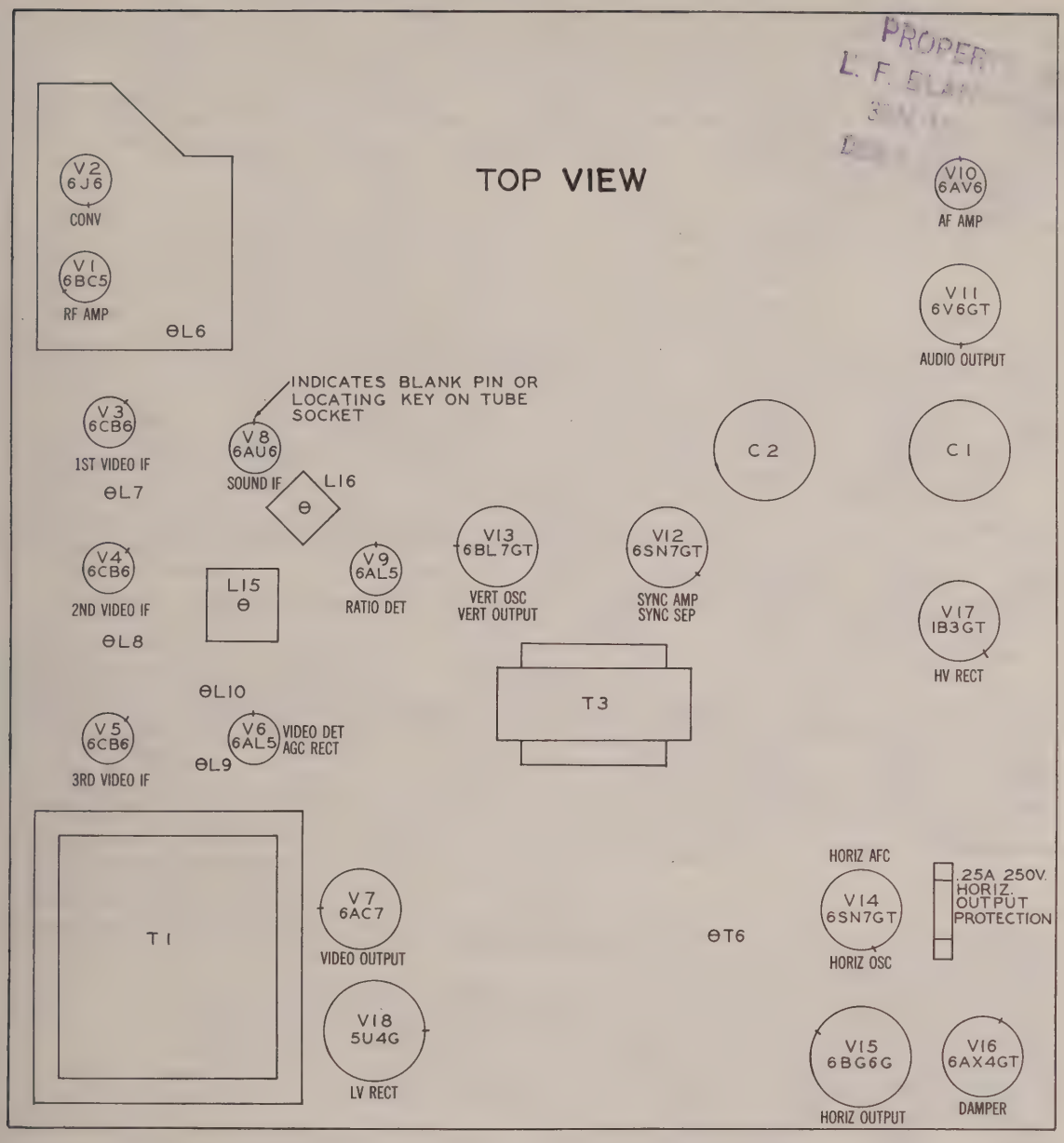
CHASSIS TOP VIEW

F. E
3924 MEADE ST
DENVER, COLORADO



CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION

TUBE PLACEMENT CHART



TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No raster, no sound-V18

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster-V2, V3, V4, V5, V6
No pic, no osund, has snow-V1, V2, V3
No pic, has sound, has raster-V7, V19
Has pic, no sound-V8, V9, V10, V11
Overloaded picture- V6

SYNC FAILURE
No vert. sync-V12, V13
No horiz. sync-V12, V14
No vert. or horiz. sync-V12

SWEEP FALLURE
No raster, has sound -V14, V15, V16, V17, V19 Fuse (M1)
No vertical deflection-V13
Poor vert. linearity or foldover-V13
Poor horiz. linearity or foldover-V14, V15, V16
Narrow picture-V14, V15, V16, V17, V18
Vert. off freq-V12, V13
Horiz. off freq-V12, V14

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The high voltage shock hazard can be eliminated by removing the horizontal oscillator tube (V14).

VIDEO IF ALIGNMENT

Remove the converter tube (V2) from its socket and replace with a 6J6 which has pin 1 removed.
This will disable the local oscillator and reduce the possibility of erroneous indications.
Connect the negative lead of a 3 volt battery to the ungrounded side of C33. Connect the positive side to chassis.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	Direct	High side to an ungrounded tube shield floating over dummy converter tube. Low side to chassis.	28.25MC (Unmod)	Any	DC probe to point ◇A◇ Common to chassis.	A1	Adjust for MINIMUM deflection.
2.	"	"	25.2MC	"	"	A2	Adjust for maximum deflection.
3.	"	"	23.25MC	"	"	A3	"
4.	"	"	25.75MC	"	"	A4	"
5.	"	"	23.8MC	"	"	A5	"

OVERALL VIDEO IF RESPONSE CHECK

Leave bias battery as under Video IF Alignment.
Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
6.	Direct	High side to an ungrounded tube shield floating over dummy converter tube. Low side to chassis.	24MC (10MC SWP)	22.25MC 23.6MC 26.75MC 28.25MC	Any	Vert. amp. to point ◇A◇. Low side to chassis.		Check for response similar to Fig. 1. If necessary, retouch A2 thru A5 for desired response.

SOUND IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
7.	.001MFD	High side oto pin 1 (cathode) of 6AL5 (V6). Low side to chassis.	4.5MC (Unmod)	Any	DC probe to point ◇B◇ Common to chassis.	A6, A7, A8	Adjust for maximum deflection.
8.	"	"	"	"	DC probe to point ◇C◇ Common to chassis.	A9	Adjust for a zero reading. A positive and negative reading will be obtained on either side of the correct setting.

SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60% modulation and 450KC sweep. Use 120% sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
7.	.001MFD	High side to pin 1 (cathode) of 6AL5 (V6). Low side to chassis.	4.5MC (450KC SWP)	4.5MC	Any	Vert. amp. to point ◇B◇. Low side to chassis.	A6, A7 A8	Disconnect stabilizer capacitor C7. Adjust for curve of maximum amplitude and symmetry as in Fig. 2.
8.	"	"	"	"	"	Vert. amp. to point ◇C◇. Low side to chassis.	A9	Reconnect capacitor C7. Adjust so that 4.5MC occurs at center of crossover lines as in Fig. 3. SLIGHTLY retouch A8 for maximum amplitude and straightness of crossover lines.

OSCILLATOR ALIGNMENT

Remove the dummy converter tube and replace the original 6J6 in its socket.
Complete oscillator alignment may not be necessary.
If the oscillator seems to be off frequency approximately the same amount for a majority of the channels it may be possible to correct them in one step using A10. It should be noted that this is an all channel oscillator circuit adjustment and should not be used to correct any individual channel. If adjustment of A10 will not bring all channels well within the range of the fine tuning control it will be necessary to adjust the channel strip adjustment for each channel that is off frequency. The channel adjustment screws are reached through a hole just to the right of the channel switch shaft. The correct adjustment screw is accessible through this hole as the channel switch is turned to each channel.
Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Set the fine tuning control to the mid-position of its range.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
9.	Two 120Ω carbon resistors.	Across antenna terminals with 120Ω in each lead.	213MC (10MC SWP)	211.25MC 215.75MC	13	Vert. amp. to point ◇A◇. Low side to chassis.	A11	Adjust to place video marker at 50% on high frequency side of response curve. Sound marker should not be higher than 10% response.
			207MC (10MC SWP)	205.25MC 209.75MC	12		A12	
			201MC (10MC SWP)	199.25MC 203.75MC	11		A13	
			195MC (10MC SWP)	193.25MC 197.75MC	10		A14	
			189MC (10MC SWP)	187.25MC 191.75MC	9		A15	
			183MC (10MC SWP)	181.25MC 185.75MC	8		A16	
			177MC (10MC SWP)	175.25MC 179.75MC	7		A17	
			85MC (10MC SWP)	83.25MC 87.75MC	6		A18	
			79MC (10MC SWP)	77.25MC 81.75MC	5		A19	
			69MC (10MC SWP)	67.25MC 71.75MC	4		A20	
			63MC (10MC SWP)	61.25MC 65.75MC	3		A21	
			57MC (10MC SWP)	55.25MC 59.75MC	2		A22	

ALIGNMENT INSTRUCTIONS (CONT.)

RF AND MIXER ALIGNMENT

Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
10.	Two 120Ω carbon resistors.	Across antenna terminals with 120Ω in each lead.	207MC (10MC SWP)	205.25MC 209.75MC	12	Vert. amp. thru 47KΩ to point (D). Low side to chassis.	A23, A24 A25	Adjust for curve of maximum amplitude and bandwidth similar to Fig. 4.
11.	"	"	213MC (10MC SWP)	211.25MC 215.75MC	13	"		Check for response similar to Fig. 4. If markers fall below 70% on any channel. Make slight compromise adjustments of A23, A24 and A25 with channel switch set to that channel, then check all other channels to see that they have not been seriously affected.
			201MC (10MC SWP)	199.25MC 203.75MC	11			
			195MC (10MC SWP)	193.25MC 197.75MC	10			
			189MC (10MC SWP)	187.25MC 191.75MC	9			
			183MC (10MC SWP)	181.25MC 185.75MC	8			
			177MC (10MC SWP)	175.25MC 179.75MC	7			
			85MC (10MC SWP)	83.25MC 87.75MC	6			
			79MC (10MC SWP)	77.25MC 81.75MC	5			
			69MC (10MC SWP)	67.25MC 71.75MC	4			
			63MC (10MC SWP)	61.25MC 65.75MC	3			
			57MC (10MC SWP)	55.25MC 59.75MC	2			

TOUCH-UP ALIGNMENT OF A6

Tune receiver to a TV signal and examine picture for evidence of 4.5MC beat interference.
If any is noted retouch A6 for minimum interference.

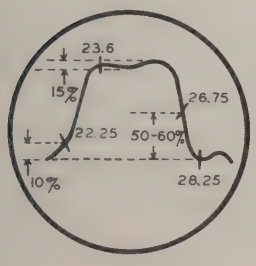


FIG. 1

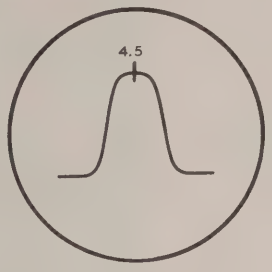


FIG. 2

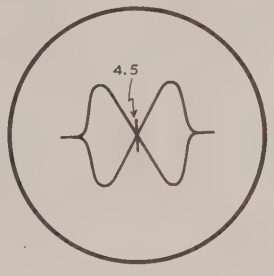


FIG. 3

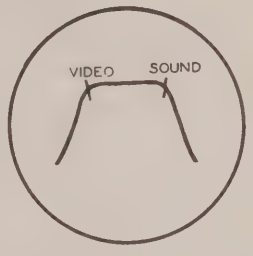
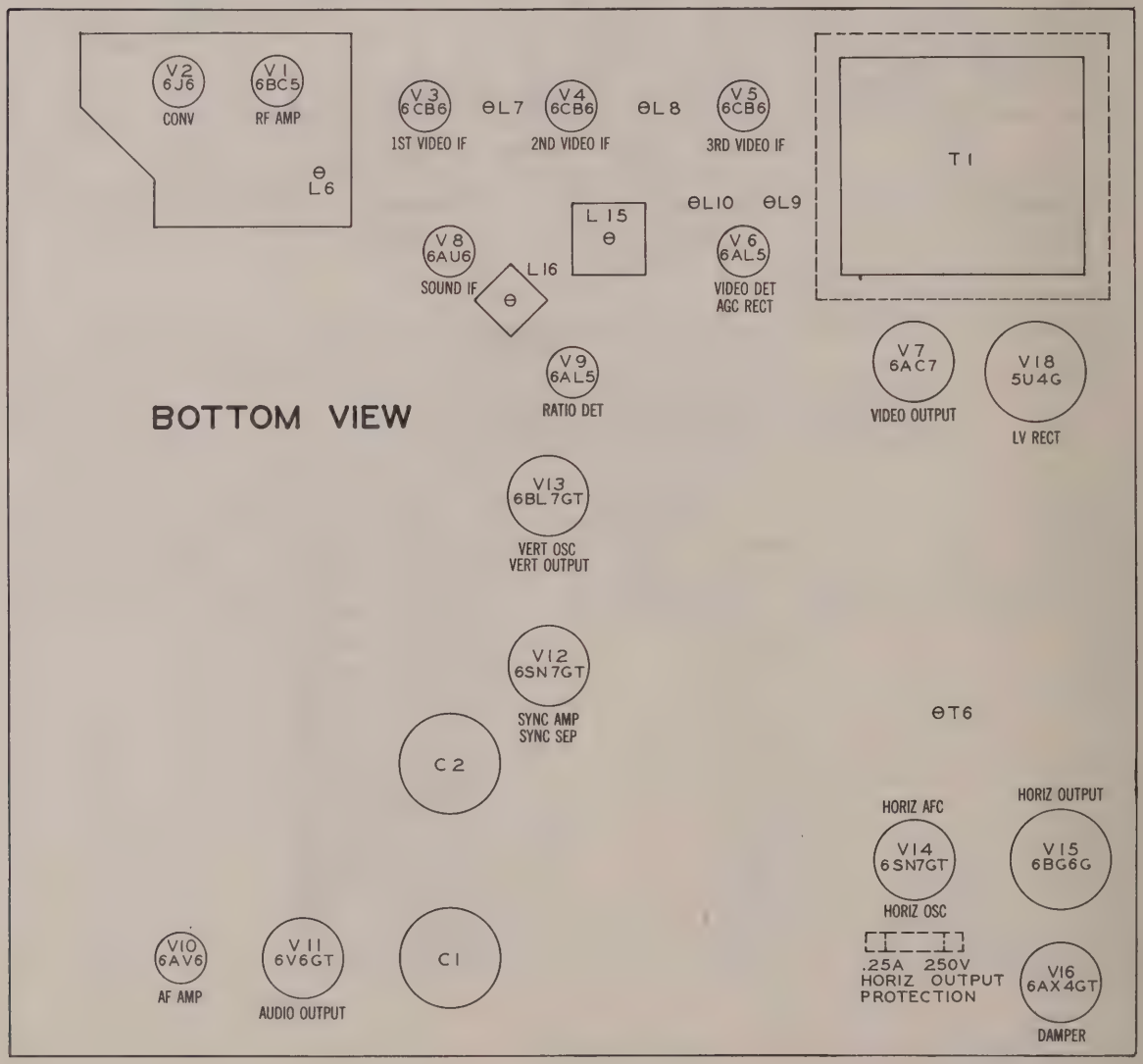


FIG. 4

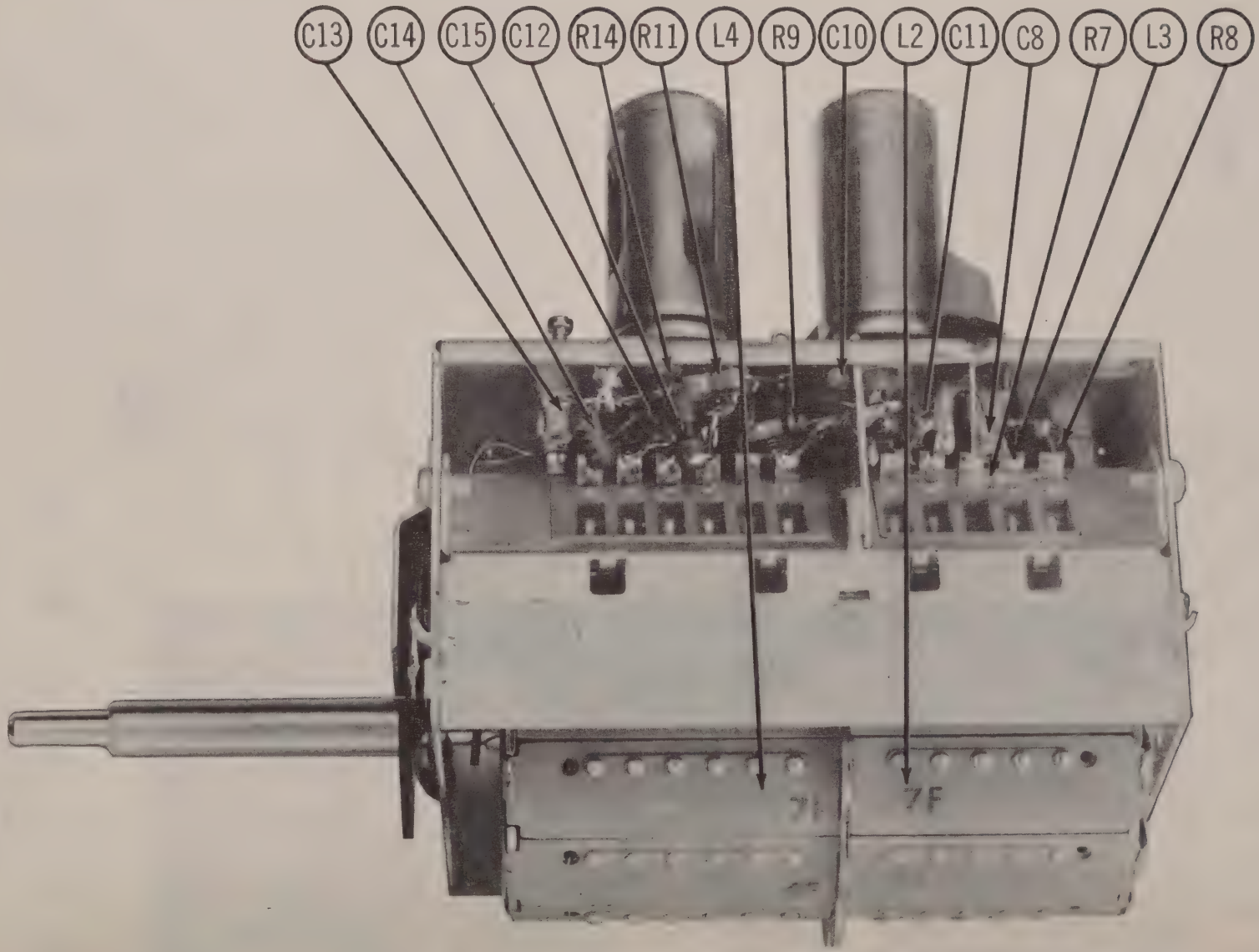
RESISTANCE MEASUREMENTS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6BC5	2 Meg	0Ω	0Ω	.1Ω	†6.4KΩ	†6.4KΩ	0Ω		
V 2	6J6	†8.9KΩ	†19KΩ	0Ω	.1Ω	225KΩ	10KΩ	0Ω		
V 3	6CB6	1.7Meg	39Ω	.1Ω	0Ω	†5KΩ	†5.2KΩ	39Ω		
V 4	6CB6	1.7Meg	39Ω	.1Ω	0Ω	†15KΩ	†5.2KΩ	39Ω		
V 5	6CB6	.3Ω	150Ω	.1Ω	0Ω	†10KΩ	†5.2KΩ	150Ω		
V 6	6AL5	.3Ω	680KΩ	.1Ω	0Ω	1.1KΩ	0Ω	5.6KΩ		
V 7	6AC7	0Ω	0Ω	0Ω	1 Meg	300Ω	†56KΩ	.1Ω	†6.2KΩ	
V 8	6AU6	100KΩ	0Ω	0Ω	.1Ω	†5.2KΩ	†5KΩ	50Ω		
V 9	6AL5	INF	INF	.1Ω	0Ω	6.8KΩ	0Ω	6.8KΩ		
V 10	6AV6	10 Meg	0Ω	0Ω	.1Ω	0Ω	0Ω	†330KΩ		
V 11	6V6GT	INF	.1Ω	†2.2KΩ	†1.7KΩ	470KΩ	INF	0Ω	220Ω	
V 12	6SN7GT	3.3Meg	†220KΩ	0Ω	†220KΩ	†12.4KΩ	8.2KΩ	0Ω	.1Ω	
V 13	6BL7GT	1.1Meg	†2.9Meg	0Ω	560KΩ	†1.3KΩ	1KΩ	0Ω	.1Ω	
V 14	6SN7GT	700KΩ	†96KΩ	280KΩ	200KΩ	†22KΩ	0Ω	0Ω	.1Ω	
V 15	6BG6G	†3.2KΩ	0Ω	100Ω	INF	1 Meg	INF	.1Ω	†3.2KΩ	Top Cap #100Ω
V 16	6AX4GT	INF	INF	1.2Meg	INF	†250Ω	INF	.1Ω	0Ω	
V 17	1B3GT	PINS 1 - 8 HAVE INF RESISTANCE								Top Cap #600Ω
V 18	5U4G	INF	11KΩ	INF	48.3Ω	INF	44.6Ω	INF	11KΩ	
V 19	20CP4	0Ω	150KΩ	Pin 6 0Ω	Pin 10 180KΩ	Pin 11 340KΩ	Pin 12 .1Ω			

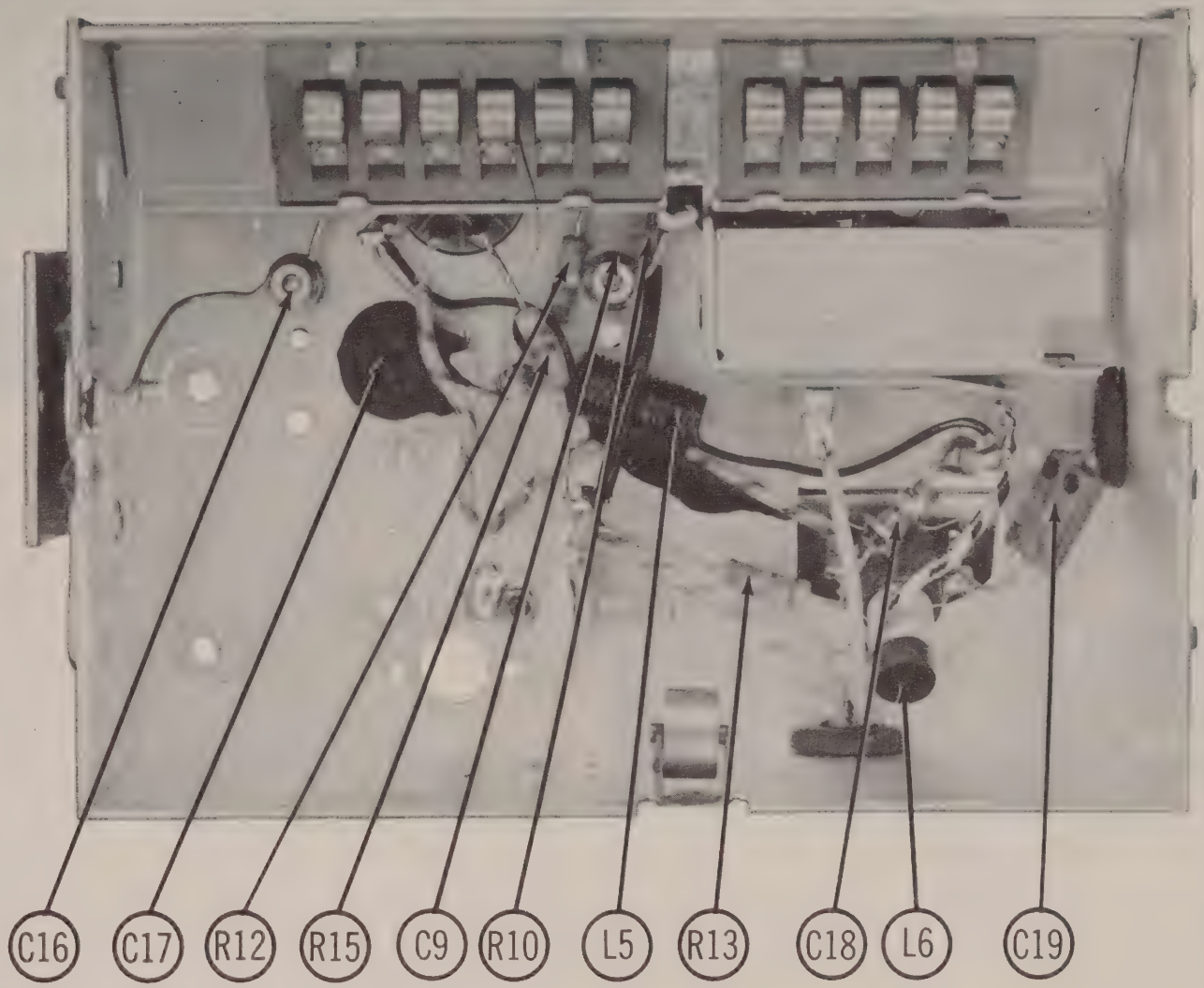
† MEASURED FROM PIN 8 OF V18
# MEASURED FROM PIN 3 OF V16



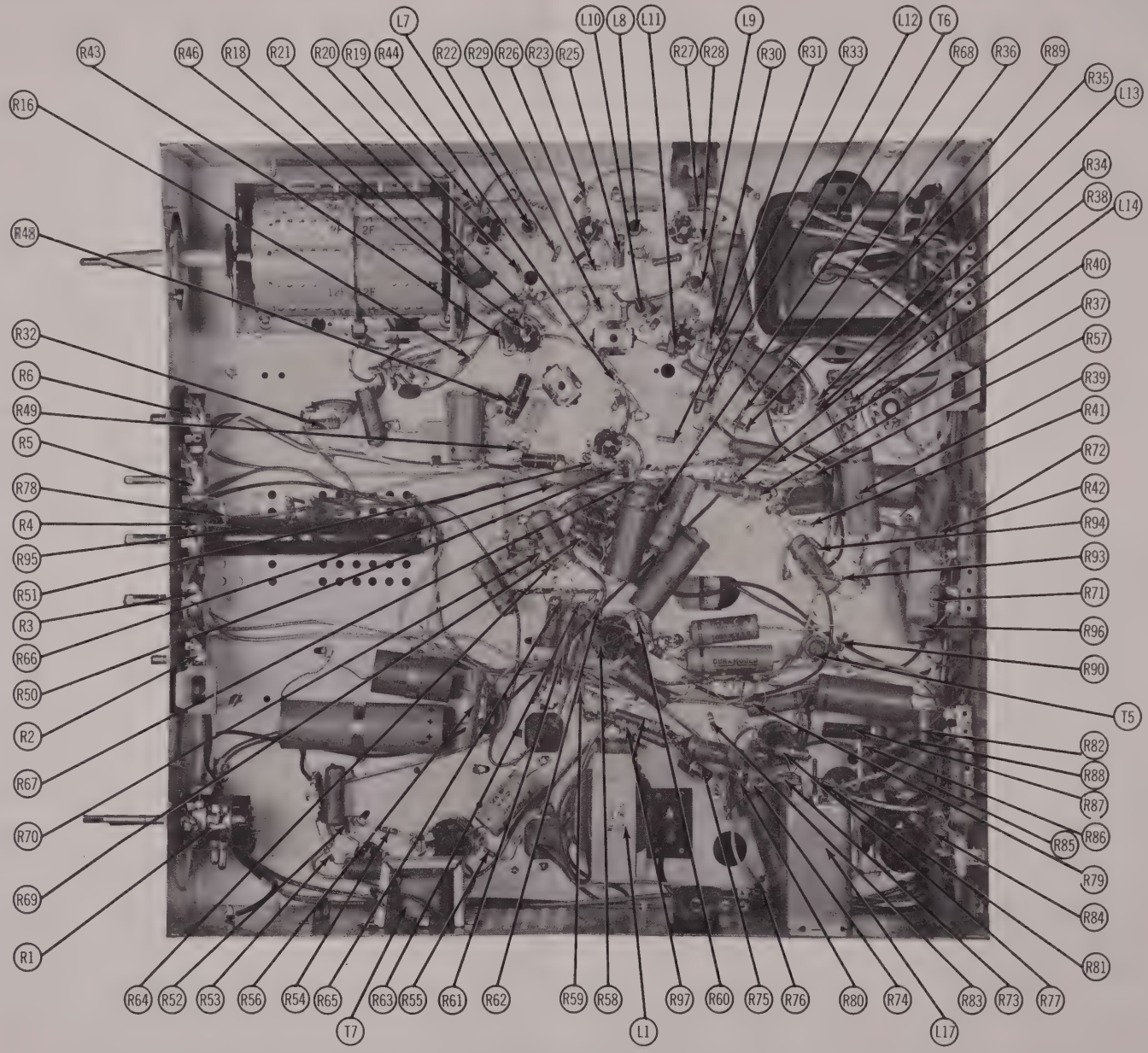
TUBE PLACEMENT CHART



RF TUNER-RIGHT SIDE

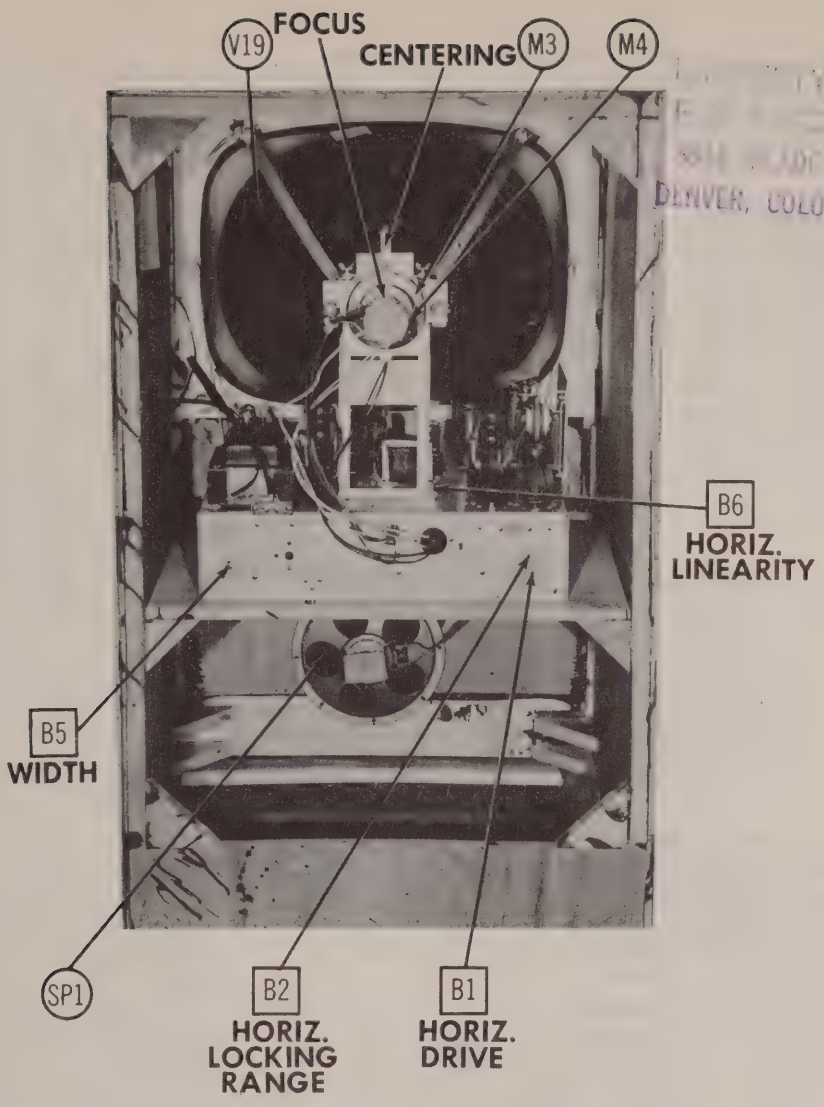


RF TUNER-BOTTOM VIEW



CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION

DENVER, COLORADO



CABINET-REAR VIEW

Turn the set on and tune in a TV station, preferably a test pattern.

If horizontal synchronization is unsatisfactory due to misadjustment in the sweep circuit, the following adjustments should be performed:

1. Set horizontal drive trimmer (B1) approximately 1/4 turn from tight.
2. Set Lock Trimmer (B2) approximately 1/2 turn from tight.
3. Set horizontal frequency slug (B3) 3/4" above top of coil dome.
4. Turn horizontal hold control to its mid-position.
5. Adjust the phasing slug (B4) for horizontal sync .
6. Turn horizontal hold control fully counter clockwise and interrupt the signal by turning off channel and back again. 2 to 3 diagonal bars should appear.
7. Momentarily interrupt the signal as in Step 6, but with horizontal hold at mid-position and at extreme clockwise rotation. Picture should return to sync in each case.
8. If picture jumps as horizontal hold is adjusted clockwise too much sync is indicated and lock trimmer B2, should be tightened slightly and B4 readjusted if necessary. If picture will not return to sync in Step 7 loosen B2 slightly.

Adjust B1 counter clockwise as far as possible with presence of vertical white lines or compression of center of picture.

Adjust width slug (B5) for a picture slightly wider than necessary to fill the picture mask horizontally.

Adjust the horizontal linearity slug (B6) for a picture that is symmetrical from left to right.

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No	USE	REPLACEMENT DATA: Ambassador PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1A	RF Amplifier	6BC5	6BC5	7BD	
B	RF Amplifier	6AG5	6AG5	7BD	
C	RF Amplifier	6CB6	6CB6	7CM	
V2	Converter	6J8	6J8	7BF	
V3	1st. Video IF Amp.	6CB6	6CB6	7CM	
V4	2nd. Video IF Amp.	6CB6	6CB6	7CM	
V5A	3rd. Video IF Amp.	6CB6	6CB6	7CM	
B	3rd. Video IF Amp.	6AG5	6AG5	7BD	(Used in model T1853AK, beginning with Ser. No. 4543038)
V6	Video Detector-AGC Rectifier	6AL5	6AL5	6BT	
V7	Video Output	6AC7	6AC7	8N	
V8	Sound IF Amp.	6AU6	6AU6	7BK	
V9	Ratio Detector	6AL5	6AL5	6BT	
V10	AF Amplifier	6AV6	6AV6	7BT	
V11	Audio Output	6V6GT	6V6GT	7B	
V12	Sync Amplifier - Sync. Seperator	6SN7GT	6SN7GT	6BD	
V13	Vert. Multivibrator Vert. Output	6BL7GT	6BL7GT	6BD	
V14	Horiz. AFC-Horiz. Oscillator	6SN7GT	6SN7GT	6BD	
V15	Horiz. Output	6BG6G	6BG6G	5BT	
V16	Damper	6AX4GT	6AX4GT	4CG	
V17	HV Rectifier	1B3GT	1B3GT	3C	
V18	LV Rectifier	5U4G	5U4G	5T	

CATHODE-RAY TUBE

ITEM No.	REPLACEMENT DATA: Ambassador PART No.	REPLACEMENT DATA: SYLVANIA PART No.		RTMA BASE TYPE	NOTES
V19A	20CP4	20CP4		12D	① Circuit changes necessary
		20CP4A	①	12D	② 3/8" longer.
		20DP4	① ②	12D	
		20DP4A	① ②	12D	
		20HP4	①	12C	
		20HP4A	① ②	12C	
		20MP4	①	12C	
		20LP4	① ②	12C	
B	21FP4				

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: Ambassador PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C1A	▲40	450		AFH2-57		BO45		FP238	TVL-2764	
B	▲40	450								
C2A	▲60	250		AFH3-178		C139		FP335	TVL-3711	
B	▲100	25								Note 1
C3	80	450		PRS450/80		BR8045		ST845	TVA-1716	Note 2
C4	10	450								Note 2
C5	25	25		PRS25/25		BR252A		TC25	TVA-1205	
C6	10	450		PRS450/10		BR1045A		TC72	TVA-1705	
C7	4	50		PRS150/4		BR550		TC30	TVA-1303	
C8	3-8				829-10					
C9	.5-3				829-3				CT565A	
C10	120			SII20	D6-121	TM5T12	GP2K-121		UC-5312	5GA-T12
C11	1000			BPD-001	DD-102	TM5D1	801-001		DC-521	5HK-D1
C12	100			SII00	D6-101	TM5T1	GP1K-101		UC-531	5GA-T1
C13	.5-3				829-3				CT565A	
C14	20			SII20NP0	TCZ-20		NP0K-200		ZT-542	5TCC-Q2
C15	10			SII0N750	TCN-10		N750K-100		NT-541	5TCU-Q1
C16	.5-3				829-3				CT565A	
C17A	1000			BPD-2X001	DD-2-102	TM5DD1	812-001		DCD-521	5HK-2D1
B	1000									
C18	10			SII0NP0	TCZ-10		NP0K-100		ZT-841	5TCC-Q1
C19	120			SII20	D6-121	TM5T12	GP2K-121		UC-5312	5GA-T12
C20A	1500			BPD-2X0015	DD-2-152	TM5DD15	812-0015		DCD-5215	5HK-2D15
B	1500									
C21	.01	600		P688-01	D6-103	PTE68I	GP2-333-103		PT6II	6TM-SI
C22A	1500			BPD-2X0015	DD-2-152	TM5DD15	812-0015		DCD-5215	5HK-2D15
B	1500									
C23	270	500		SII70	D6-271		GP2K-271		UC-5327	5GA-T27
C24A	1500			BPD-2X0015	DD-2-152	TM5DD15	812-0015		DCD-5215	5HK-2D15
B	1500									
C25	270	500		SII70	D6-271		GP2K-271		UC-5327	5GA-T27
C26	1500			SII500	D6-152	TM5D15	GP2L-152		UC-5215	5HK-D15
C27	5000			BPD-005	DD-502	TM5D5	811-005		DC-525	5HK-D5
C28	270	500		SII70	D6-271		GP2K-271		UC-5327	5GA-T27
C29	270	500		SII70	D6-271		GP2K-271		UC-5327	5GA-T27
C30	1.5			SIL5NP0	TCZ-1.5		NP0K-1R5		ZT-5515	5TCCB-V15
C31	10			SII0	D6-100	5W5Q1	GP1K-100		UC-541	5GA-Q1
C32	1500			SII500	D6-152	TM5D15	GP2L-152		UC-5215	5HK-D15
C33	.25	400		P488-25		PTE42S			PT4025	4TM-P25
C34	.05	600		P688-05	DF-503	PTE68S			PT6I5	6TM-S5
C35	.0033	600		P688-0033	D6-332	PTE6D33	GP2-333-332		PT6233	6TM-D3
C36	680	500		SII680	D6-681		GP2K-681		UC-5368	5GA-T68
C37	270	500		1468-0003	D6-271	5W5T3	GP2K-271		MC241	1FM-33
C38	.1	600		P688-1	DF-104	PTE68P1			PT601	6TM-P1
C39	100			SII00	D6-101	TM5T1	GP1K-101		UC-531	5GA-T1
C40	.0047	600		P688-0047	D6-472	PTE6D47	GP2-333-472		PT6247	6TM-D47
C41	3.3			SI3.3NP0	TCZ-3.3		NP0K-3R3		ZT-5533	5TCCB-V33
C42	470	500		1469-0005		5R5T5			MCB245	MS-35
C43	470	500		1469-0005		5R5T5			MCB245	MS-35
C44	390	500		1468-0004	D6-391	5W5T4	GP2K-391		MC243	1FM-34
C45	390	500		1468-0004	D6-391	5W5T4	GP2K-391		MC243	1FM-34
C46	.0022	600		P688-0022	D6-222	PTE6D22	GP2-333-222		PT6222	6TM-D22
C47	.0047	600		P688-0047	D6-472	PTE6D47	GP2-333-472		PT6247	6TM-D47
C48	.01	600		P688-01	D6-103	PTE68I	GP2-333-103		PT6II	6TM-SI
C49	.01	600		P688-01	D6-103	PTE68I	GP2-333-103		PT6II	6TM-SI

CAPACITORS (CONT.)

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: Ambassador PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C50	.005	600		P688-005	D6-502	PTE6D5	GP2-333-502	PT625	6TM-D5	
C51	700	500		1475-0007		2S577			MS-37	Note 5
C52	.01	600		P688-01	D6-103	PTE68I	GP2-333-103	PT6II	6TM-SI	
C53	.15	600		P688-15		PTE6P15		TP417		
C54	470	500		1469-0005		5R5T5		MCB245	MS-35	
C55	.0022	600		P688-0022	D6-222	PTE6D22	GP2-333-222	PT6222	6TM-D22	
C56	470	500		1469-0005		5R5T5		MCB245	MS-35	
C57	4700	500		1464-005		IDR5D5		MCB465	MS-25	
C58	.05	600		P688-05	DF-503	PTE68S		PT6I5	6TM-S5	
C59	.25	400		P488-25		PTE4P25		PT4025	4TM-P25	
C60	.022	600		P688-022		PTE68Z2		PT6I22	6TM-S22	
C61	.022	600		P688-022		PTE68Z2		PT6I22	6TM-S22	
C62	.05	600		P688-05	DF-503	PTE68S		PT6I5	6TM-S5	
C63	.005	600		P688-005	D6-502	PTE6D5	GP2-333-502	PT625	6TM-D5	
C64	.1	600		P688-1	DF-104	PTE6P1		PT60I	6TM-P1	
C65	.03	600		P688-03		PTE6S3		PT6I3	6TM-S3	
C66	50			8I50	D6-500	TM5Q5	GP1K-500	UC-545	5GA-Q5	
C67	.002	600		P688-002	D6-202	PTE6D2	GP2-333-202	PT622	6TM-D2	
C68	.05	600		P688-05	DF-503	PTE68S		PT6I5	6TM-S5	
C69	.5	200		P288-5		P2P5		PT405	2TM-P5	
C70	.022	400		P488-022	DF-203	PTE4S22		PT4I25	4TM-S22	
C71	180	500								
C72	.008	400								Note 3
C73	.0039	600		1464-004		IDR5D4		MCB463	MS-24	Note 3
C74	.002	600		P688-002	D6-202	PTE6D2	GP2-333-202	PT622	6TM-D2	
C75	.002	600		P688-002	D6-202	PTE6D2	GP2-333-202	PT622	6TM-D2	
C76	.05	600		P688-05	DF-503	PTE68S		PT6I5	6TM-S5	
C77	.25	400		P488-25		PTE4P25		PT4025	4TM-P25	
C78	.033	1000		P1088-033						
C79	.027	1000								
C80	500	20000		HV20C	TV3-501	MM-C20TS	413-501		20DK-T5	
C81	.01	1000		P1088-01		PTE16SI		PT6II	MB-SI	
C82	.25	400		P488-25		PTE4P25		PT4025	4TM-P25	
C83	.01	600		P688-01		PTE68I		PT6II	6TM-SI	
C84	.01	600		P688-01		PTE68I		PT6II	6TM-SI	
C85	1500			BPD-0015	DD-152	TM5D15	801-152		DC-5215	5HK-D15 Note 6
C86	1500			BPD-0015	DD-152	TM5D15	801-152		DC-5215	5HK-D15 Note 6
C87	5000			BPD-005	DD-502	TM5D5	811-005		DC-525	5HK-D5 Note 6

Note 1. Some Models use 125MFD in this application.
Note 2. Some Models combine C3 and C4 in a dual unit.
Note 3. In Models using C73, C72 is .0039MFD.
When C72 is .008MFD, C73 is not used.
Note 4. Not used in chassis bearing Serial #4542035 and up (Model T-1853AK)
Note 5. Chassis bearing Serial #4542035 and up (Model T-1853AK) use 470MMF in this application.
Note 6. Used in chassis bearing Serial #4542035 and up (Models T-1853AV and T-1853AK).

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: Ambassador PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1500Ω	2	131-0017	QJ-419*	RTV-324			Contrast-Tap ⑥ 1000Ω - Wire Wound-Panel
B	1 Meg							Volume & Switch-Rear
R2A	5000Ω		131-0018	QII-114	AG-19-8	AB-10	SU-14	Vert. Linearity
B	Shaft		Not Req.	Not Req.	FKS-1/4	AK-1	Not Req.	Attach to R2A
R3A	50KΩ		131-0012	QII-123	AG-44-8	AB-31	U-35	Brightness
B	Shaft		Not Req.	Not Req.	KSS-3	AK-4	Not Req.	Attach to R3A
R4A	1 Meg		131-0013	QII-137	AG-61-8	AB-69	U-54	Vert. Hold
B	Shaft		Not Req.	Not Req.	KSS-3	AK-4	Not Req.	Attach to R4A
R5A	50KΩ		131-0012	QII-123	AG-44-8	AB-31	U-35	Horiz. Hold
B	Shaft		Not Req.	Not Req.	KSS-3	AK-4	Not Req.	Attach to R5A
R6A	2.5Meg		131-0019	QII-139	AG-84-8	AB-83	SU-585	Height
B	Shaft		Not Req.	Not Req.	FKS-1/4	AK-1	Not Req.	Attach to R6A

* CONCENTRIKIT EQUIVALENT-KIT K-3, BASE ELEMENTS & SHAFTS W17-109 & P3-118 (Panel)
B13-137 & R1-207 (Rear) & SWITCH 76-1.

RESISTORS

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: Ambassador PART No.	IRC PART No.	NOTES
R1	3900Ω			BTS-3900	Note 1
R2	47KΩ			BTS-47K	
R9	10KΩ			BTS-10K	
R10	2200Ω			BTS-2200	
R11	4700Ω			BTS-4700	
R12	320KΩ				
R13	15KΩ				
R14	10KΩ			BTS-10K	
R15	4700Ω			BTS-4700	
R16	1000Ω			BTS-1000	
R17	150Ω			BTS-150	Note 5
R18	15KΩ - 5%			BTS-15K-5%	
R19	39Ω				
R20	1000Ω			BTS-1000	
R21	1000Ω			BTS-1000	
R22	12KΩ - 5%			BTS-12K-5%	
R23	39Ω				
R24	150Ω			BTS-150	Note 5
R25	10KΩ			BTA-10K	
R26	1000Ω			BTS-1000	
R27	150Ω			BTS-150	
R28	4700Ω - 5%			BTS-4700-5%	
R29	1000Ω			BTS-1000	
R30	1 Meg			BTS-1 Meg	
R31	680KΩ			BTS-680K	
R32	27KΩ			BTA-27K	
R33	5600Ω			BTS-5600	Note 8
R34	1 Meg			BTS-1 Meg	
R35	150Ω			BTS-150	
R36	56KΩ			BTS-56K	

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: Ambassador PART No.	IRC PART No.	NOTES
R37	4700Ω	2		BTB-4700	
R38	1500Ω			BTS-1500	Note 7
R39	1 Meg			BTS-1 Meg	
R40	22KΩ			BTS-22K	Note 8
R41	470KΩ			BTS-470K	
R42	150KΩ			BTS-150K	
R43	150Ω			BTS-150	Note 4
R44	100KΩ			BTS-100K	Note 2
R45	22KΩ			BTS-22K	Note 2
R46	1000Ω			BTS-1000	Note 3
R47	22KΩ	2		BTB-22KΩ	Note 5
R48	100Ω			BTS-100	
R49	22KΩ			BTS-22K	
R50	6800Ω			BTS-6800	
R51	6800Ω			BTS-6800	
R52	10 Meg			BTS-10 Meg	
R53	330KΩ			BTS-330K	
R54	470KΩ			BTS-470K	
R55	220Ω			BTS-220	
R56	1500Ω	5		1 3/4A-1500	
R57	56KΩ			BTS-56K	Note 9
R58	3.3Meg			BTS-3.3Meg	
R59	220KΩ			BTS-220K	
R60	8200Ω			BTS-8200	
R61	8200Ω	2		BTB-8200	
R62	56KΩ			BTS-56K	
R63	56KΩ			BTS-56K	
R64	56KΩ			BTS-56K	
R65	100KΩ			BTS-100K	
R66	470KΩ			BTS-470K	

RESISTORS (CONT.)

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: Ambassador PART No.	IRC PART No.	NOTES
R67	820KΩ			BTS-820K	
R68	4700Ω			BTS-4700	Note 5
R69	560KΩ - 5%			BTS-560K-5%	
R70	560Ω			BTS-560	
R71	3300Ω			BTS-3300	
R72	15KΩ - 5%			BTS-15K-5%	
R73	560KΩ - 5%			BTS-560K-5%	
R74	180KΩ			BTS-180K	
R75	100KΩ - 5%	1		BTA-100K-5%	
R76	4700Ω			BTS-4700	
R77	3.3Meg - 5%	1		BTA-3.3Meg-5%	
R78	120KΩ			BTS-120K	
R79	220KΩ			BTS-220K	
R80	100KΩ - 5%	1		BTA-100K-5%	
R81	10KΩ			BTS-10K	
R82	22KΩ	1		BTA-22K	

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: Ambassador PART No.	IRC PART No.	NOTES
R83	150KΩ			BTS-150K	
R84	1 Meg			BTS-1 Meg	
R85	47Ω				
R86	47Ω				
R87	100Ω	2		BW-2-100	
R88	3000Ω	2			
R89	100Ω	5		1 3/4A-100	
R90	6800Ω			BTS-6800	
R91	3Ω				Note 11
R92	1 Meg				
R93	180KΩ			BTS-180K	
R94	1 Meg			BTS-1 Meg	
R95A	200Ω	25			
B	4000Ω	25			
R96	33Ω	2			
R97	15KΩ	5		1 3/4A-15K	Note 10

Note 1. Some models use a 3300Ω resistor in this application.
Note 2. Used only in models T-1853 & T-1853A.
Note 3. Models T1853 & T-1853A used a 10KΩ in this application. Not used in model T-1853AK.
Note 4. Used only in models T-1853AV & T-1853AK.
Note 5. Used only in model T-1853AK.
Note 6. Model T-1853AK uses an 8200Ω resistor in this application.
Note 7. Not used in model T-1853AK.
Note 8. Model T-1853AK uses a 10KΩ resistor in this application.
Note 9. Model T-1853AK uses a 470KΩ resistor in this application.
Note 10. Some models use two 33KΩ resistors in parallel to obtain correct value.
Note 11. Some models use a 3.3Ω resistors in this application.

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: Ambassador PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	RCA TYPE No.
T1	117VAC ⑨ 1.74A	680VCT .200ADC	5VAC ⑨ 3A	6.3VAC ⑨ 8A		P-8166 ①②	P-3070	TP-370 ①		

① Drill new mounting holes.
② Parallel the two 6.3V. windings and use as Sec. 3.

TRANSFORMER (SWEEP CIRCUITS)

ITEM No.	RATING: DC RESISTANCE PRI.	RATING: DC RESISTANCE SEC.	REPLACEMENT DATA: Ambassador PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	RCA TYPE No.	NOTES
T2	560Ω tap ⑨ 60Ω	10Ω tap ⑨ 7Ω SEC. 2 0Ω		A-8130 ①②	HVO-7 ② ③	TFB-12	D-14 ② ④	231T1 ③	Horiz. Output Trans.
T3	1100Ω tap ⑨ 13Ω			A-8123	A-3037	TSO-11 ⑤	A-102X	222T1	Vert. Output Trans.
T4A	17Ω			DY-9A	MDF-70	TY-3 ⑥	Y-17	211D2	Horiz. Deflection Coils
B	60Ω								Vert. Deflection Coils
T5	40Ω			WC-5 ⑦	MWC-1 ⑦	TWL-1	WC-11		Horiz. Lin. Coil
T6	7Ω tap ⑨ 5Ω								Width Coil

① Use with Width Coil WC-5
② Wire as shown on installation schematic #4.
③ Use with Width Coil MWC-1.
④ Use with Width Coil WC-11
⑤ Drill new mounting holes.
⑥ Use original deflection coil network.
⑦ Enlarge mounting hole.
⑧ See installation sheet packed with unit for terminal connections.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: Ambassador PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	NOTES
T7	4.1KΩ	3.6Ω	310Ω	.7Ω		A-3877	A-2930	RO-9	S-3X	

SPEAKER

ITEM No.	RATINGS: SIZE	RATINGS: FIELD	RATINGS: V. C. IMP.	REPLACEMENT DATA: Ambassador PART No.	JENSEN PART No.	QUAM PART No.	NOTES
SP1	8"	PM	3.6Ω		ST-115 Mod. P8-V	8A21	

FILTER CHOKE

ITEM No.	RATINGS: TOTAL DIRECT CURRENT	RATINGS: D. C. RESISTANCE	RATINGS: INDUCTANCE (0 CURRENT 1000 ^C)	REPLACEMENT DATA: Ambassador PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.
L1	.200ADC	27Ω	1 Hy.		C-2328	C-2991	C-17X	

PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA		NOTES
		PRI.	SEC.	Ambassador PART No.	MERIT PART No.	
L2	Ant. Coils	0Ω	0Ω			
L3	Fil. Choke	0Ω				
L4	RF, Mixer Grid & Osc. Coils	0Ω				
L5	Fil. Choke	0Ω				
L6	1st. Video IF	1Ω			TV-102 *	
L7	2nd. Video IF	.3Ω			TV-103 *	
L8	3rd. Video IF	.3Ω			TV-102 *	
L9	4th. Video IF	.3Ω			TV-103 *	
L10	Cathode Trap	.3Ω			TV-112 *	
L11	Series Peaking Coil	4.2Ω			TV-181	93 Microhenries
L12	Shunt Peaking Coil	11Ω			TV-188	500 Microhenries
L13	Series Peaking Coil	5Ω			TV-182	20 Microhenries, wound on 22KΩ resistor
L14	Shunt Peaking Coil	7.5Ω			TV-185	250 Microhenries
L15	Sound IF	1.9Ω	1.9Ω		TV-113	
L16	Ratio Det.	5.5Ω	2ΩCT		TV-115	Tertiary Winding - .6Ω
L17	Horiz. Osc.	80Ω			TV-162	Pri. tapped @ 22Ω -Horiz. Waveform Winding -45Ω

* Enlarge mounting hole.

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			Ambassador PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1	3AG P/T	1/4A 250V			318.250 (3AG-1/4A-P/T)		GJV-1/4	

MISCELLANEOUS

ITEM No.	PART NAME	Ambassador PART No.	NOTES
M2	RF Tuner		
M3A	Focus Magnet		Includes centering device (Used with 20CP4)
B	Centering Magnet		(Used with 21FP4)
M4	Ion Trap		

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

Touch-up adjustments of the RF Tuner Oscillator Circuit may be accomplished by removal of the Channel Selector and Fine Tuning knobs.

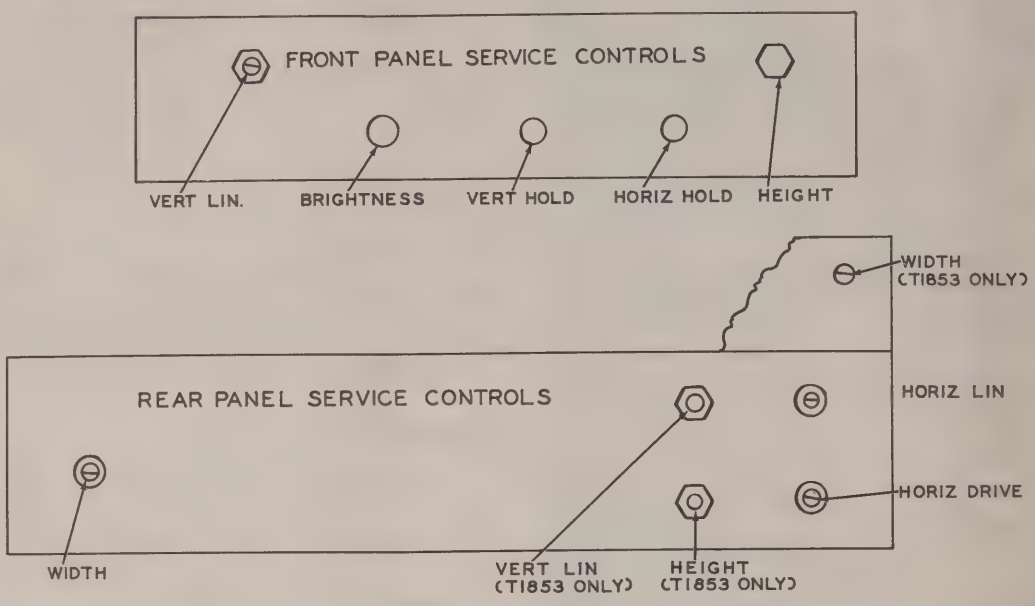
PICTURE TUBE SAFETY GLASS CLEANING

For picture tube safety glass cleaning , it is necessary to remove chassis. (See disassembly instructions).

PICTURE TUBE REMOVAL

For picture tube removal it is neces sary to remove chassis. (See disassembly instructions).

SERVICE ADJUSTMENT LOCATION



HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

For adjustment of Horiz. Oscillator it is necessary to remove chassis. For correct adjustment see Horiz. Sweep Circuit Adj. on page 13.

SOUND IF DETECTOR BUZZ ADJ.

To eliminate Sound IF Detector buzz, adjust the Ratio Detector Secondary (L16) located on top of chassis. (See tube placement chart).

FUSES

One fuse is used for Horiz. Sweep Circuit protection. For location see tube placement chart.

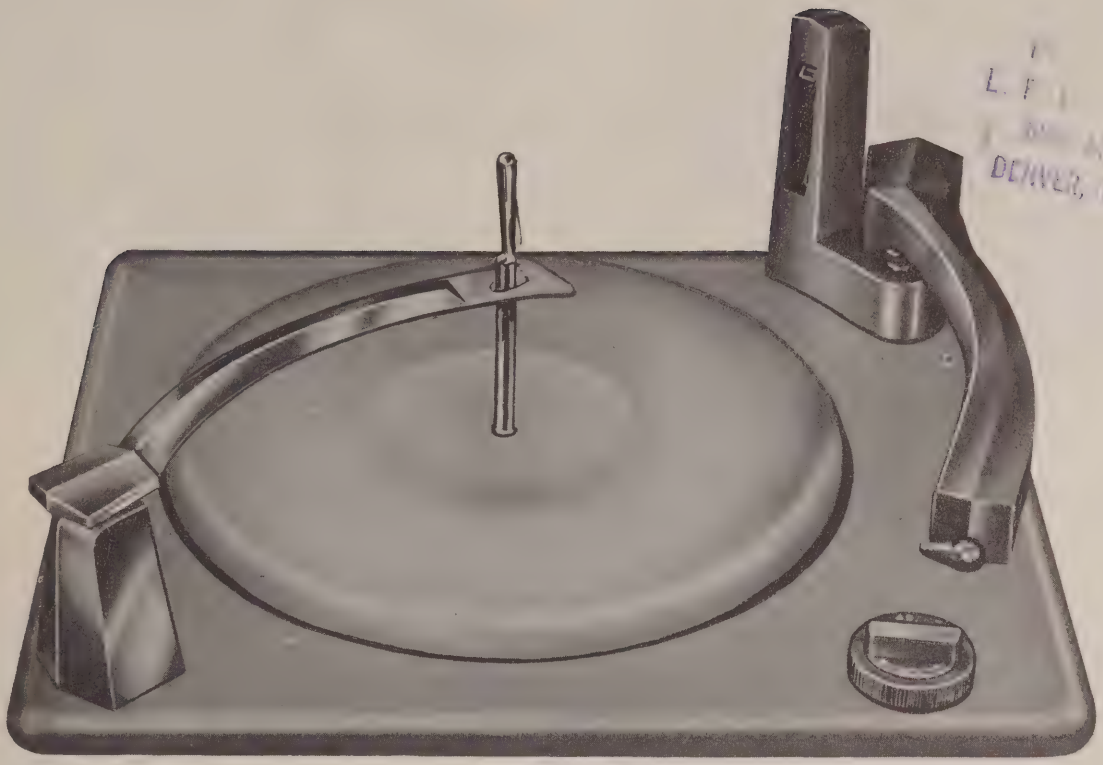
CENTERING

Centering is accomplished by the adjustment of two magnetic rings which fit around the neck of the picture tube, flush against the deflection yoke. Rotate the two rings around the picture tube until proper centering of picture is obtained.

DISASSEMBLY INSTRUCTIONS

1. Remove 4 push on type control knobs from front panel.
2. Remove 5 wood & 2 metal screws. Remove rear cover.
3. Disconnect built-in antenna & speaker.
4. Remove 3 chassis bolts. Remove chassis.
5. Remove 2 speaker nuts. Remove speaker.

PROF.
E. F. BLANK
3924 MEADE S
DENVER, COLORA



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DENVER, COLORADO

CRESCENT
MODEL 500 Series

CRESCENT
MODEL 500 Series

Figure 1

GENERAL INFORMATION

The Crescent Model 500 Series Record Changer is designed to play 78 RPM, 45 RPM and 33-1/3 RPM records of standard commercial dimensions.

Features of this changer include playing and automatically changing as many as ten 12" records, twelve 10" records, ten 7", 33-1/3 RPM records, or fifteen 7", 45 RPM records, or any assortment of ten 7", 10" and 12" records of the same speed (33-1/3, 45, or 78 RPM).

Seven inch, 45 RPM records can be played by inserting an adaptor in the record or by using a special 45 RPM spindle that is available as an accessory.

Some Changers of the 500 Series employ an automatic shut-off mechanism that shuts the changer off after the last record has been played. On changers not having this feature the last record will be repeated.

Connect this changer only to an outlet supplying 117 volts, 60 cycles, AC, unless otherwise specified.

Manufactured by:

Crescent Industries Inc.
5900 West Touhy Avenue
Chicago 31, Illinois

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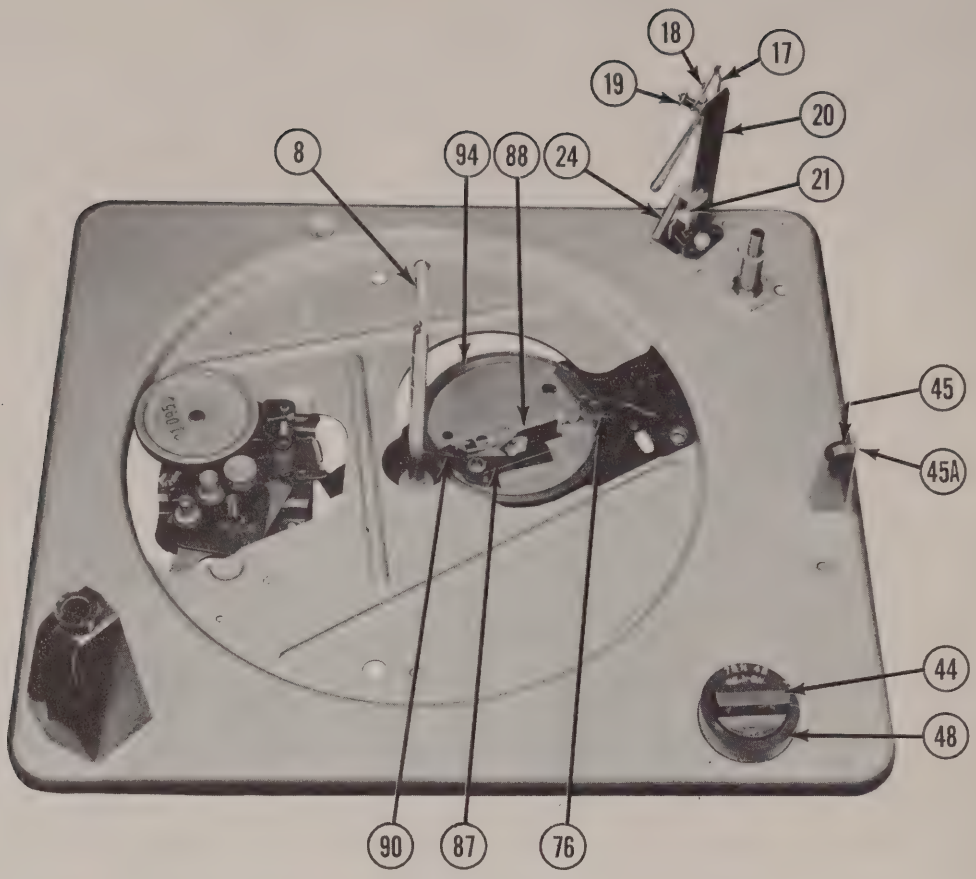


Figure 2

Differences In 500 Series Record Changers

500 Series Record Changers are similar mechanically, the major difference being the automatic shut-off mechanism used on some models.

NOTE: For information concerning the above, refer to Figures 3 and 4, exploded view and parts' list.

PREPARING FOR OPERATION

Shipping Bolts: Before placing in operation, the changer must be floated freely on the mounting springs (49B). During shipment the mechanism is secured by means of three shipping bolts (49A). To float the changer turn the three shipping bolts in a clockwise direction as far as possible.

Leveling Record Changer: For best results, the record changer should be level. Use a suitable level on the baseplate. Adequate shims can be used under the baseplate or cabinet to achieve perfect level.

Loading -

1. Lift straight up on the pressure arm cap until the pressure arm (1) clears the spindle (8). Swing the pressure arm to the left until its locating pin drops into the locating groove of the pressure arm housing (4).

NOTE: 33-1/3, 45 and 78 RPM records cannot be intermixed. The speed control knob (48) must be reset for each type of record.

2. Place records on spindle (8) and lower to offset shelf. Hold records level and replace pressure arm (1) over the spindle.

NOTE: In portable models release tone arm from clip (45A) by lifting straight up on arm.

To Play 78 RPM Records -

1. Speed control knob (48) must be in the "78" position.

2. On changers using a turnover cartridge, the turnover knob must be set for "78".

3. To start the changer turn the "On/Off" knob (44) to "Rej." position and release slowly to "On" position. The Crescent Changer will now operate automatically until the last record has been played, at which time the tone arm will return to its rest (45) and the mechanism will shut off.

NOTE: Some changers in the 500 Series do not employ the automatic shut-off mechanism.

To Play 33-1/3 RPM Records -

1. Speed control knob (48) must be in the "33" position.

2. On changers using a turnover cartridge, the turnover knob must be in "33-45" position.

To Play 45 RPM Records -

1. Speed control knob (48) must be in the "45" position.

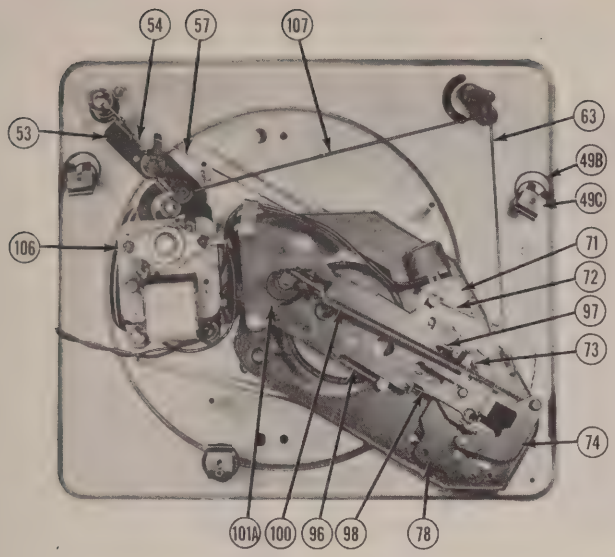


Figure 3 Bottom View - With Shut-Off Mechanism.

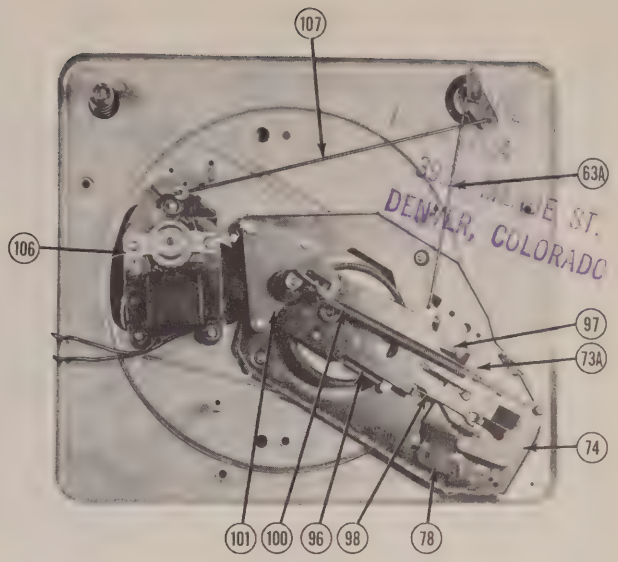


Figure 4 Bottom View - Without Shut-Off Mechanism.

2. On changers using a turnover cartridge, the turnover knob must be in "33-45" position.

3. 45 RPM records are manufactured with a 1-1/2" center hole. If used with the conventional spindle (8), an adaptor must be inserted in the record; however, a special spindle is available that eliminates the need of adaptors.

45 RPM Spindle Operating Instructions -

1. Lift up on pressure arm (1A) and turn it to the left as far as possible.

2. Be sure tone arm is in its rest position.

3. Grasp spindle between thumb and forefinger; with forefinger on actuator (109), squeeze actuator slightly and place spindle on center post (8) with actuator facing the selector housing (15). Turn the spindle slightly to the left, or right, until the slot in the bottom of the spindle lines up with the gate on center post (8). Push down on the spindle until it comes to rest on the turntable. The 45 RPM spindle is now ready to operate.

To Operate -

1. Place a stack of records, up to 15, on the spindle. Turn pressure arm (1A) to the right and lower it onto the records.

NOTE: If conventional type pressure arm (1) is used, it must be left in the outward position. In this position, the last record will be repeated until the changer is shut off manually. When hook type pressure arm (1A) is used, the changer will automatically shut off after the last record has played.

2. Proceed as described under "To Play 45 RPM Records".

Rejecting -

To reject a record at any time while changer is operating, turn "On/Off" knob (44) to "Rej." and slowly release to "On" position.

Neutral Position -

When the changer is to be out of service for any length of time, it should be left in the neutral position. This position is identified by the letter "N" engraved on the speed control knob (48). When in this position the motor shaft and idler wheel do not come in contact with the drive wheels, thereby preventing any flat spots from developing on the rubber tires.

CHANGE CYCLE

This changer is provided with what is known as a velocity trip mechanism. The change cycle is started by the faster inward motion of the tone arm when the needle enters the lead-out groove at the end of a record.

The tone-arm assembly and the tone-arm actuating lever (74) are secured at opposite ends of the tone-arm shaft so that they move in unison. As the tone arm nears the end of a record, the tone-arm actuating lever (74) pushes the push trip rod (76), which, in turn, engages push trip rod (88) rotating the pawl locator (87) to move the trip pawl (90) toward the turntable hub by action of the clutch disc (89). While a record is playing, the small motions of the trip pawl (90) are not sufficient to trip the mechanism because, on each revolution of the turntable, the wiping action by the trip cam (point "A" on exploded view) moves the trip pawl (90) back far enough to clear the trip cam.

When the needle enters the lead-out groove, causing the tone arm to advance rapidly toward the spindle, the trip pawl (90) is moved far enough to definitely engage the trip cam (point "A" on exploded view). As the trip cam engages the trip pawl (90), cam wheel (94) is pushed in a counterclockwise direction until it makes contact with the serrated portion of the turntable hub. Since the turntable is rotating, the eccentric cam wheel (94) also rotates, pushing the main slide (95) away from the spindle.

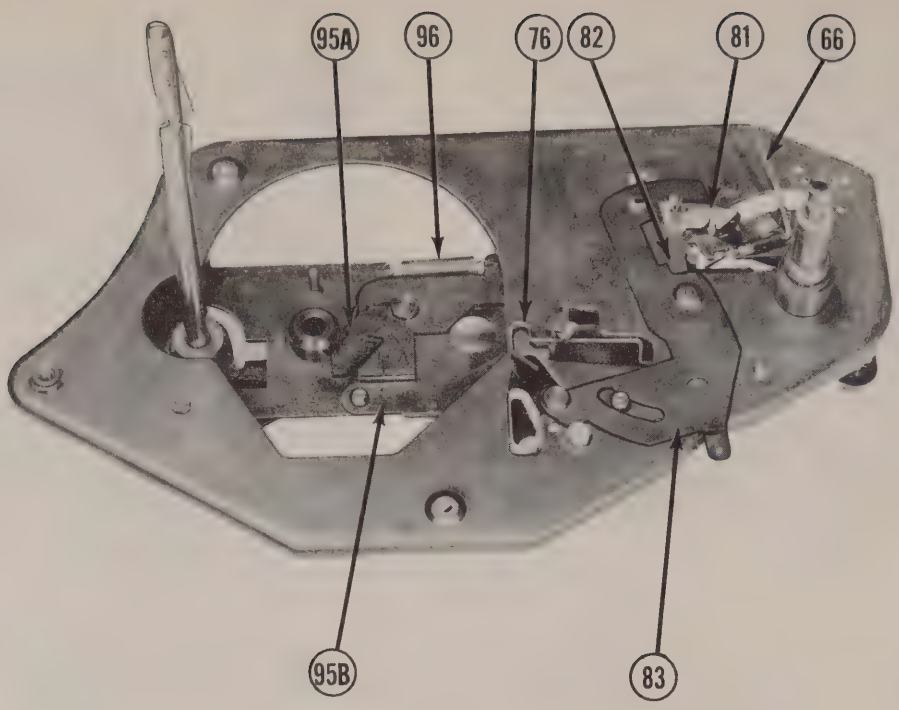


Figure 5

As the main slide (95) begins to move, the cam surface (point "B" on exploded view) pushes the lift shaft (70) upward, raising the tone arm clear of the record. At the same time, spring (98) contacts the tone-arm actuating lever (74) swinging the tone arm clear of the turntable.

As the cam wheel (94) continues to rotate, the positioning stud on the main slide (95) contacts and moves the pawl locator (87) across the cutout in the cam wheel (94), resetting the trip pawl (90) for the next change cycle.

At the same time, the lift rod (66) rides down the incline on the rear of the main slide (95), allowing the selector lever assembly (19) to pivot upward and the lift bracket (21) to be pulled downward by brake spring (24). As the selector lever assembly (19) pivots outward, the positioning rod (17) drops down in front of the tabs on the lower selector assembly (78).

The front edge of the slot (point "C" on exploded view) in the main slide (95) now contacts the ejector link on the bracket assembly (101). The ejector link moves the push-off shaft (10) upward, actuating the spindle assembly (8), dropping a record to the turntable.

Simultaneously, the stud on the tone-arm actuating lever (74) engages the lower selector assembly (78) moving it clear of the locking lever (81). The main slide (95), at this time, starts moving toward the spindle.

If a 7" record is being changed, the positioning rod (17) remains in front of the 12" selector lever (78B) and the 10" selector lever (78C), preventing them from engaging with the stud on the tone-arm actuating lever (74). The 7" selector lever is now free to move against the stud on the tone-arm actuating lever (74).

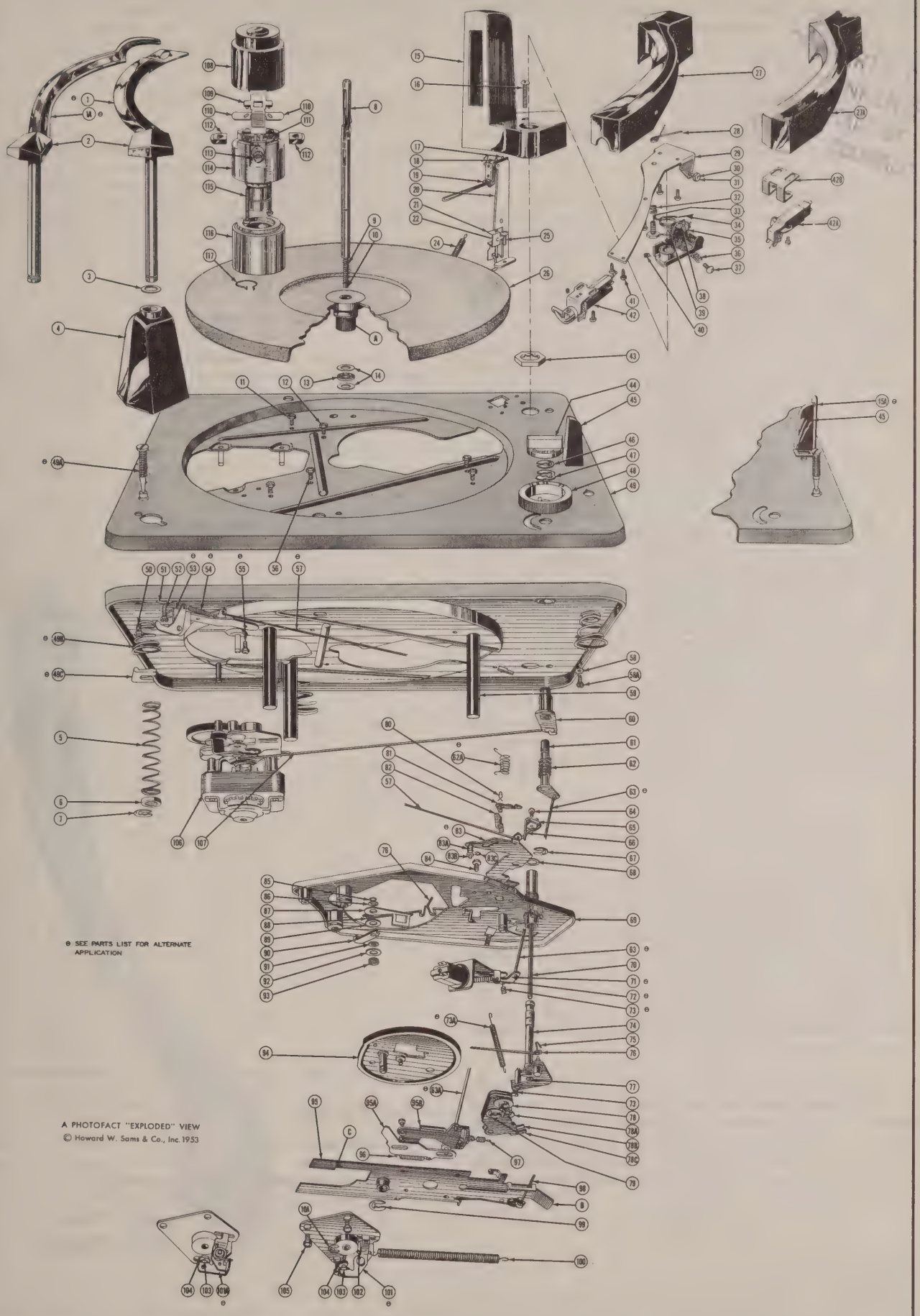
If a 10" record is being changed, the edge of the record strikes the selector lever spring on the selector lever mounting bracket (19), moving it down just far enough to lift the positioning rod (17) clear of the 10" selector lever (78C). In this position, the 12" selector lever (78B) is locked in position and the 7" and 10" selector levers contact the stud on the tone-arm actuating lever (74). Since the set-down step in the 10" selector lever is nearer the stud, the stud will engage the set-down step in the 10" selector lever (78C) first, assuring the proper set-down point for 10" records.

If a 12" record is being changed, the edge of the record strikes the selector lever spring which lifts the positioning rod (17) clear of all three selector levers. In this position, the stud on the tone-arm actuating lever (74) engages with the set-down step in the 12" selector lever (78B) first, positioning the tone arm for the 12" set-down point.

As the main slide (95) continues moving toward the spindle, one of the selector levers, which has been positioned by the size record being changed (see above), engages the stud on the tone arm actuating lever (74) pushing the tone arm in over the turntable, by pressure applied by the tone arm positioning spring (73), until the stud engages the set-down step in the selector lever, stopping the inward travel of the tone arm. The tone arm is then lowered to the lead-in groove of the record as the lift shaft (70) rides down the cam surface (point "B" on exploded view) on the main slide (95).

As the tone arm is lowered to the record, the stud on the rear of the main slide (95) contacts the lower selector assembly (78) and pushes it back far enough to release the set-down step from the stud on the tone-arm actuating lever (74), permitting the tone arm to ride freely across the record.

At this time, the stud on the rear of the main slide (95) pushes the locking arm (82), which, in turn,



⊖ SEE PARTS LIST FOR ALTERNATE APPLICATION

A PHOTOFACT "EXPLODED" VIEW

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moves the locking lever (81) far enough to engage with the pin on the lower selector assembly (78), thereby locking the lower selector assembly in the out-of-cycle position.

As the main slide nears the end of its travel, the index pin on the bottom of the cam wheel (94) rides into the detent of the cam latch (95A), preventing the cam wheel (94) from engaging with the turntable hub until the next change cycle is started.

As soon as the last record has been dropped, the arm (1) drops below the shelf on the spindle assembly (8) and the pressure arm shaft contacts the shut-off lever on the automatic shut-off assembly (53). When the last record has finished playing, the change cycle starts again; however, this time, the rest position lever (83) is pivoted inward due to the action of the shut-off rod (57), which, in turn, was actuated by the shut-off spring (54) when the pressure arm shaft contacted the shut-off lever. As the rest position lever (83) pivots inward, the stud on the bottom moves against the cam surface on the reject lever (95B) and the tab at the opposite end moves into the path of the stud on the tone-arm actuating lever (74). As the tone arm swings outward from the turntable, the stud on the tone-arm actuating lever comes in contact with the tab on the rest-position lever (83), stopping the tone arm directly over the arm rest (45), thereby preventing the stud on the tone-arm actuating lever (74) from traveling far enough to unlock the lower selector assembly (78). At this time, the stud on the rest-position lever (83) has moved behind the cam surface on the reject lever (95B), and as the main slide (95) moves forward, the stud contacts the cam surface from the rear, forcing the reject lever (95B) toward the "On/Off" switch assembly (71). The lift shaft (70) now rides down the cam surface (point "B" on exploded view) on the main slide (95), lowering the tone arm to the arm rest (45). Simultaneously, the reject lever (95) contacts the stud on the "On/Off" switch assembly (71), which, in turn, is moved far enough to shut the switch off.

Operation of 45 RPM Spindle Mechanism -

The center post (8) functions the same as before the 45 RPM spindle was placed on the changer. As the center post (8) is actuated, its ejector lever contacts the actuator (109) on the 45 RPM spindle and pushes it. This causes the separators (110) to move out which in turn, pulls bolts (112) in. As the bolts recede, the separators (110), mounted above the bolts, move out and separate the lower record of a stack and support the remaining records, while the lower record drops to the turntable.

The ejector lever on center post (8) then moves to its rest position, allowing actuator (109) on the 45 RPM spindle to return with it by pressure applied by spring (113), causing separators (110) to move in and bolts (112) to move out. This action permits the bottom record of a stack to drop from the separators to the bolts.

ADJUSTMENTS

Needle Set-Down -

The set-down point of the needle is adjusted by means of the set-down adjustment screw (37). Turn this screw, adjusting the tone arm for the correct set-down point on a 10" record. When the correct set-down point is obtained for the 10" position, the 12" and 7" set-down points will also be correct.

Tone Arm Height -

The tone arm height is adjusted by means of the height adjustment screw (33). To raise the height of the tone arm, turn this screw counterclockwise. To lower the tone arm, turn clockwise. The tone-arm height should be adjusted so the tone arm misses the underside of a record resting on the spindle shelf.

Needle Pressure -

The needle pressure should be between 8 and 12 grams. Adjustment may be made by loosening screw (39) and adjusting the pressure adjustment lever (38).

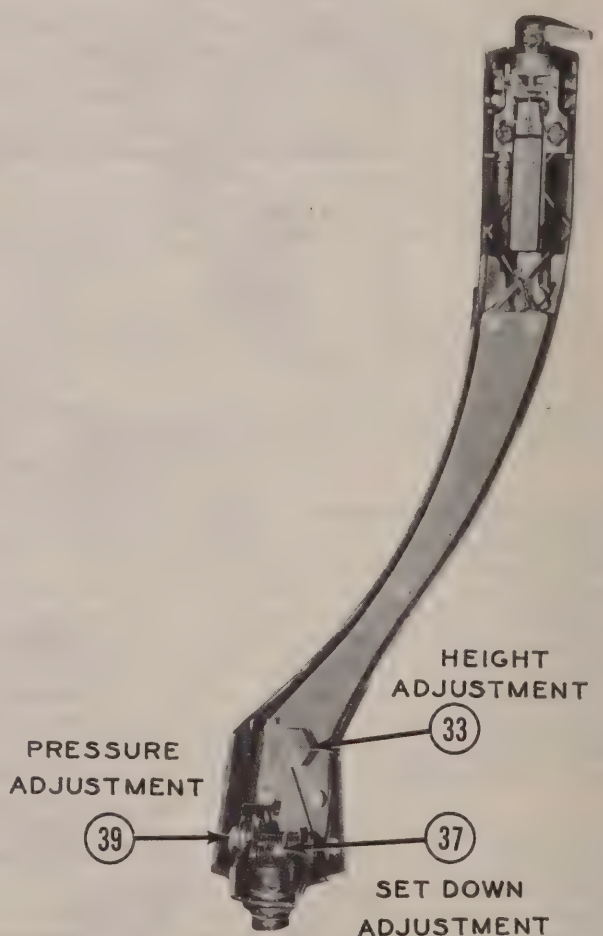

Figure 6

PARTS LIST

Ref. No.	Part No.	Description
1	010902	Pressure Arm Assembly
1A	011093	Pressure Arm Assembly (Used with 45 RPM adaptor spindle.)
2	310110	Pressure Arm Cap
3	580106	Shock Washer
4	300033	Pressure Arm Housing
5	420056	Spring
6	100463	Spring Retainer Cup
7	460067	"C" Washer
8	011203	Spindle Assembly
9	420099	Push Off Shaft Spring
10	200267	Push Off Shaft
10A	580005	"C" Washer
11	600162	Screw, thread-cutting: 8-18 x 3/8 plain hex head; cad. pl.
12	600173	Screw, self-tapping: 8-32 x 1/4 plain hex head; cad. pl.
13	290010	Bearing
14	580102	Turntable Thrust Washer
15	310112	Selector Housing
16	600196	Screw, self-tapping: 8-32 x 1" Phillips round head; cad. pl.
17	100440	Positioning Rod
18	100439	Lift Rod
19	010924	Selector Lever Mounting Bracket
20	011223	Mounting Frame
21	100575	Lift Bracket
22	420097	Clutch Compression Spring
24	420061	Brake Spring
25	600171	Screw, self-tapping: 8-32 x 1/4 Phillips round head; cad. pl.
26	011154	Turntable
	011187	Tone Arm Assembly (includes items 27 thru 42)
27	310108	Tone Arm, Turnover Cartridge & Slot for portable models
27A	310105	Tone Arm, Universal Cartridge and slot for portable models
	010950	Tone Arm Bracket and Pivot Assembly (includes items 28 thru 40)
28	420088	Adjustment Screw Retainer Spring
29	100475	Support Bracket
30	600163	Pivot Screw
31	590030	#4-40 x 1/16 x 5/16 Hex Nut
32	420085	Compression Spring
33	200217	#8-32 x 11/32 Height Adj. Screw
34	420069	Spring
	010903	Tone Arm Pivot Assembly (includes items 35 thru 40)
35	420071	Tone Arm Counterbalance Spring
36	420070	Friction Spring
37	600165	Screw, machine: 6-40 x 1/4 slotted round head; cad. pl.
38	100476	Pressure Adjustment Lever
39	600164	Screw, machine: 4-40 x 3/32 slotted round head; cad. pl.
40	600213	Setscrew: 8-32 x 3/16 Allen head; cad. pl.
41	600166	Screw, machine: 4-24 x 1/4 Phillips round head
42		Cartridge, Turnover
42A		Cartridge, Universal
42B	100516	Mounting Bracket, Universal Cartridge
43	590007	1/2 x 20 Palnut
44	310113	On/Off Knob
45	310109	Tone Arm Rest
45A	100513	Tone Arm Clip (Not used on all changers)
46	580005	"C" Washer
47	460067	"C" Washer
48	310114	Speed Control Knob
49	011153	Motorboard
49A	600199	Screw, Special (Not used on all changers)
49B	420092	Compression Spring (Not used on all changers)
49C	460089	Clip Retainer (Not used on all changers)
50	600174	Screw, thread-cutting: 8-32 x 5/16 slotted hex head; cad. pl.
51	580013	Washer
52	600005	Screw, sheet metal: 8-18 x 3/8
53	010894	Automatic Shut Off Assembly includes item 54 (Used only on changers employing automatic shut off)
54	420062	Automatic Shut Off Spring (Used only on changers employing automatic shut off)
55	600172	Screw, self tapping: 6-32 x 1/4 plain hex head; cad. pl. (Used only on changers employing automatic shut off)
56	600137	Screw, machine: 8-32 x 1/4 slotted hex head; cad. pl.
57	100453	Shut off Rod (Used only on changers employing automatic shut off)
58		#6 External Lockwasher
58A	600200	Screw, thread-cutting: 6-20 x 5/8 slotted hex head; cad. pl.
59	310060	Changer Support Leg
60	010898	Speed Control Shaft and Lever Assembly
61	010897	On/Off Shaft and Lever Assembly
62	420055	Anti-Rattle Spring
62A	420101	Anti-Rattle Spring (Used in place of item 62 on changers not employing automatic shut off)
63	100453	Shut-off Rod (Used on changers employing automatic shut off)
63A	100610	Reject Rod (Used in place of item 63 on changers not employing automatic shut off)
64	600017	Screw, machine: 4-40 x 1/4 slotted round head; cad. pl.
65	100452	Lift Rod Clamp
66	100451	Lift Rod
67	460059	"C" Washer
68	580099	Thrust Washer
69	010913	Sub Base Plate Assembly
70	101909	Lift Shaft Assembly (includes item 77)
71	010911	On/Off Switch Assembly includes item 72 (Used only on changers employing automatic shut off)
72	420058	On/Off Switch Spring (Used only with automatic shut off)

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PARTS LIST (Cont.)

Ref. No.	Part No.	Description
73	420066	Tone Arm Positioning Spring (Changers not employing automatic shut off use item 73A in this application)
73A	420100	Tone Arm Positioning Spring (Used only on changers not employing automatic shut off)
74	010912	Tone Arm Actuating Lever
75	460063	Hairpin Clip
76	100450	Push Trip Rod (Long)
77	460060	Lift Shaft Retainer (part of item 70)
78	010910	Lower Selector Assembly (includes items 78A thru 78C)
78A	010919	7" Selector Lever
78B	100447	12" Selector Lever
78C	100448	10" Selector Lever
79	580006	"C" Washer
80	420067	Retainer Spring
81	100436	Locking Lever
82	100438	Locking Arm
83	100432	Lever, Rest Position, includes items 83A thru 83C (used only on changers employing automatic shut off)
83A		Spring
83B		Stud, Rest Position Lever
83C		"C" Washer
84	600192	Screw, self-tapping: 6-32 x 3/16 slotted hex head; cad. pl.
	010914	Cam Assembly (includes items 85 thru 94)
85	460057	Retainer
86	580096	Thrust Washer
87	100435	Pawl Locator
88	100457	Trip Push Rod (Short)
89	320036	Clutch Disc
90	100449	Trip Pawl
91	580096	Thrust Washer
92	100472	Pressure Plate
93	420068	Clutch Spring
94	010923	Cam Wheel
	010908	Main Slide Assembly (includes items 95 thru 97)
95	100433	Main Slide
95A	100429	Cam Latch
95B	100430	Reject Lever
96	420064	Cam Wheel Index Spring
97	420065	Reject Lever Spring
98	420054	Spring
99	580006	"C" Washer
100	420063	Slide Spring
	010907	Center Post and Bracket Assembly (includes items 8, 9, 10 and 101 thru 104)
101	010916	Bracket Assembly (used only on changers not employing 45 RPM spindle)
101A	010916	Bracket Assembly (used in place of item 101 on changers employing 45 RPM Spindle
102	600213	Setscrew, 8-32 x 3/16 Allen head
103	590002	8-32 x 3/32 x 5/16 Hex Nut
104	200217	#8-32 x 11/32 Special Adj. Screw
105	600137	Screw, Machine: 8-32 x 1/4 Slotted Hex Head
106	010953	Motor and Drive Assembly
107	100456	Speed Control Rod (Long)
	011091	45 RPM Spindle Adaptor Assembly (includes items 108 thru 117)
108	310092	Spindle Nose
109	011198	Stud and Actuator Assembly
110	100514	Separator
111	420004	Spring
112	310090	Separator Bolt
113	420089	Compression Spring
114	300031	Spindle Housing
115	600195	Screw, 4-24 x 1-1/8 Phillips Round Head
116	300028	Record Locator
117	460088	Retainer

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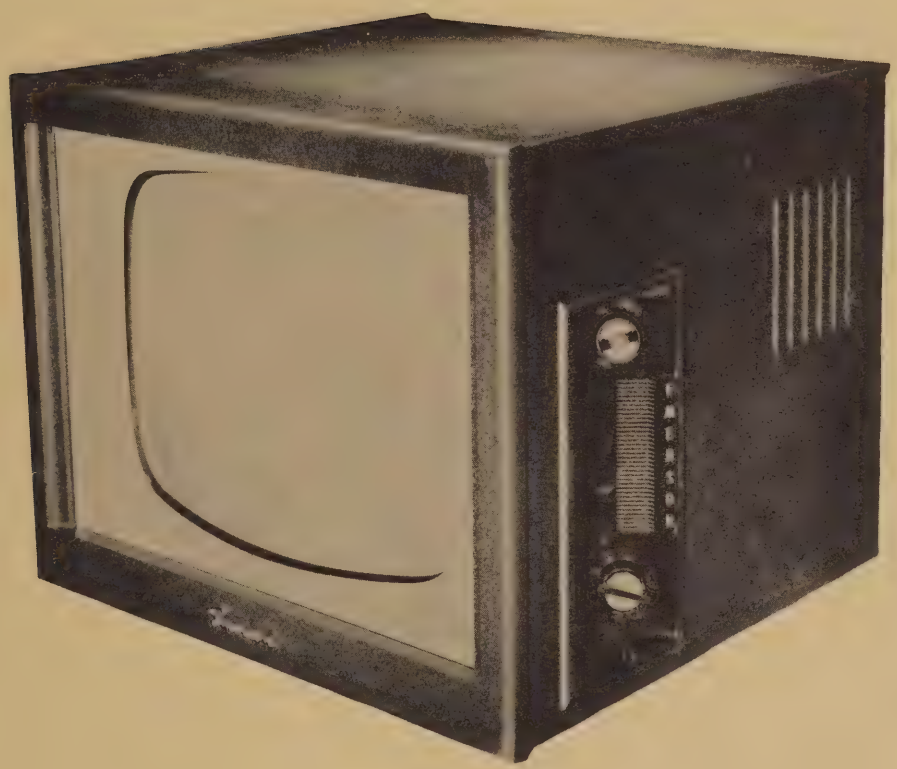

MODEL 728D

EMERSON
MODELS 721D, 728D (Ch. 120166-D)

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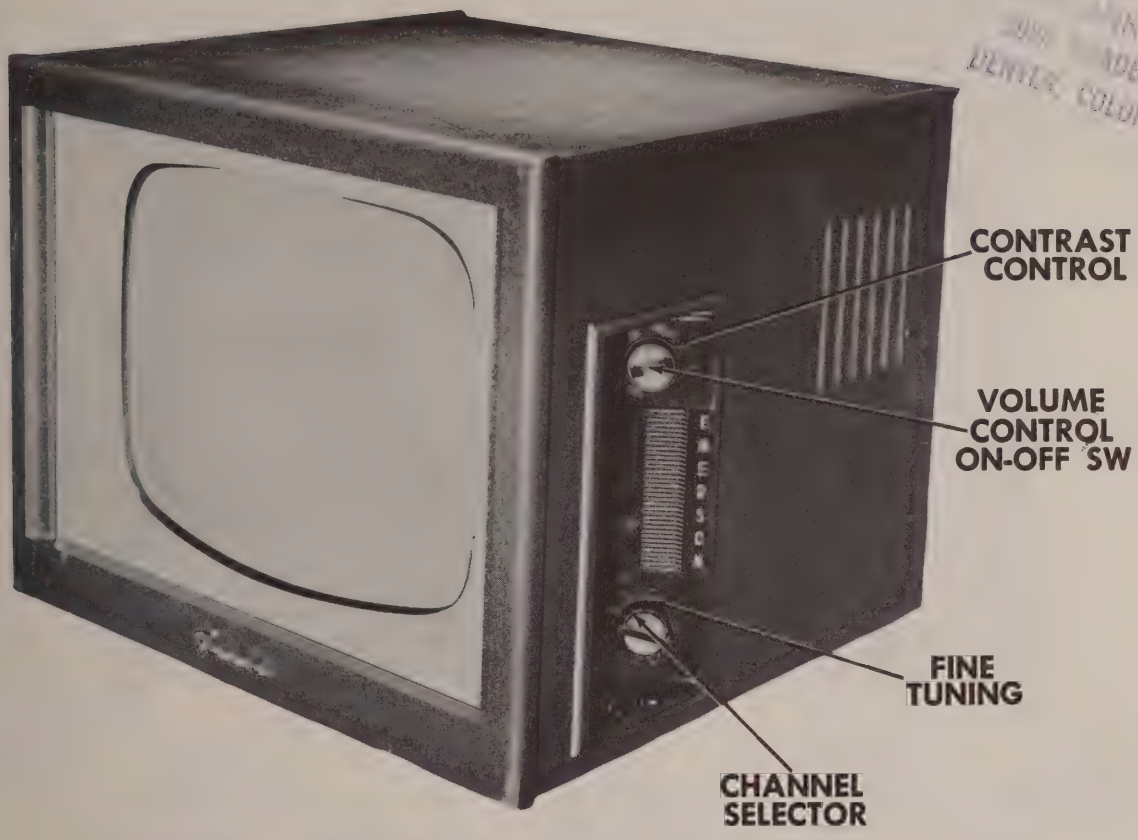

EMERSON 728D

TRADE NAME	Emerson Models 721D, 728D (Ch. 120166-D)
MANUFACTURER	Emerson Radio & Phono Corp., 111 8th. Ave., New York, N.Y.
TYPE SET	Television Receiver
TUBES	Twenty-four
POWER SUPPLY	110-120 Volts AC-60 Cycle RATING 1.8 Amp. @ 117 Volts AC
TUNING RANGE	Channels 2 thru 13, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)

INDEX

Alignment Instructions 6, 7
Disassembly Instructions 18
Horizontal Sweep Circuit Adjustments 13
Parts List and Descriptions 14, 15, 16
Photographs
Cabinet - Rear View 13
Capacitor and Alignment Identification 4, 9
Chassis - Top View 3
RF Tuner 10, 11
Photographs (Cont)
Resistor and Inductor Identification 12, 17
Resistance Measurements 8
Schematic 2
Servicing in the Field 18
Tube Failure Check Chart 5
Tube Placement Chart (Bottom View) 8
Tube Placement Chart (Top View) 5

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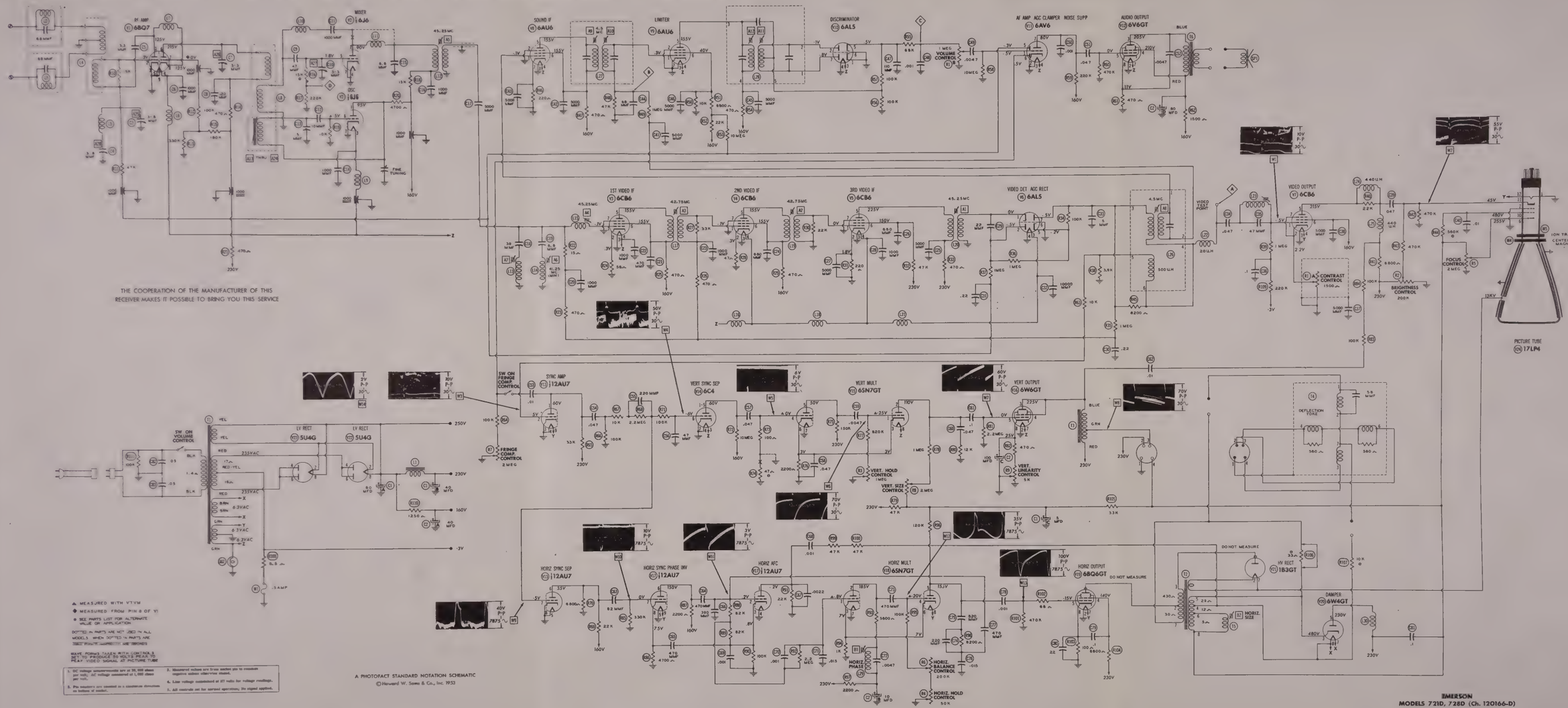
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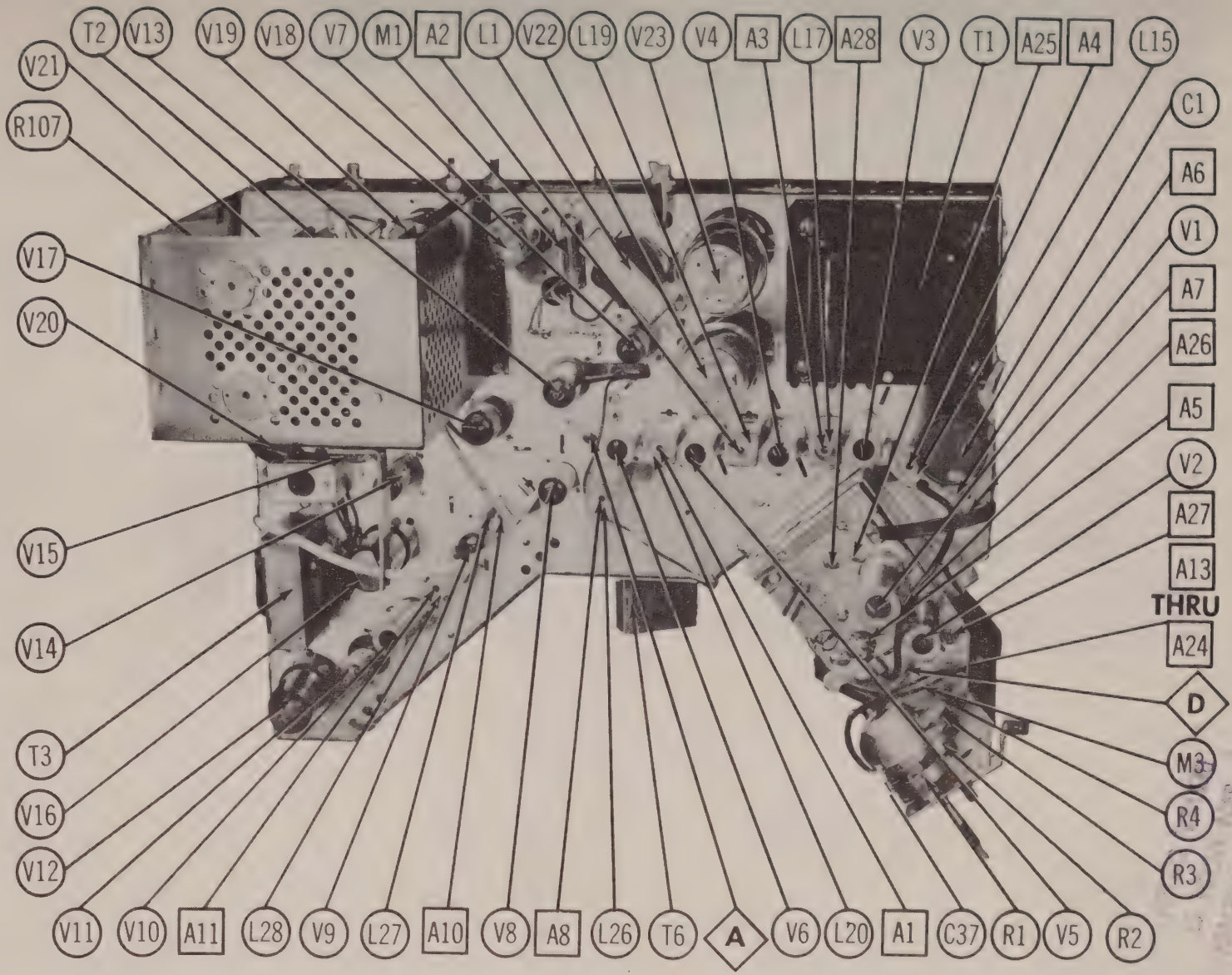
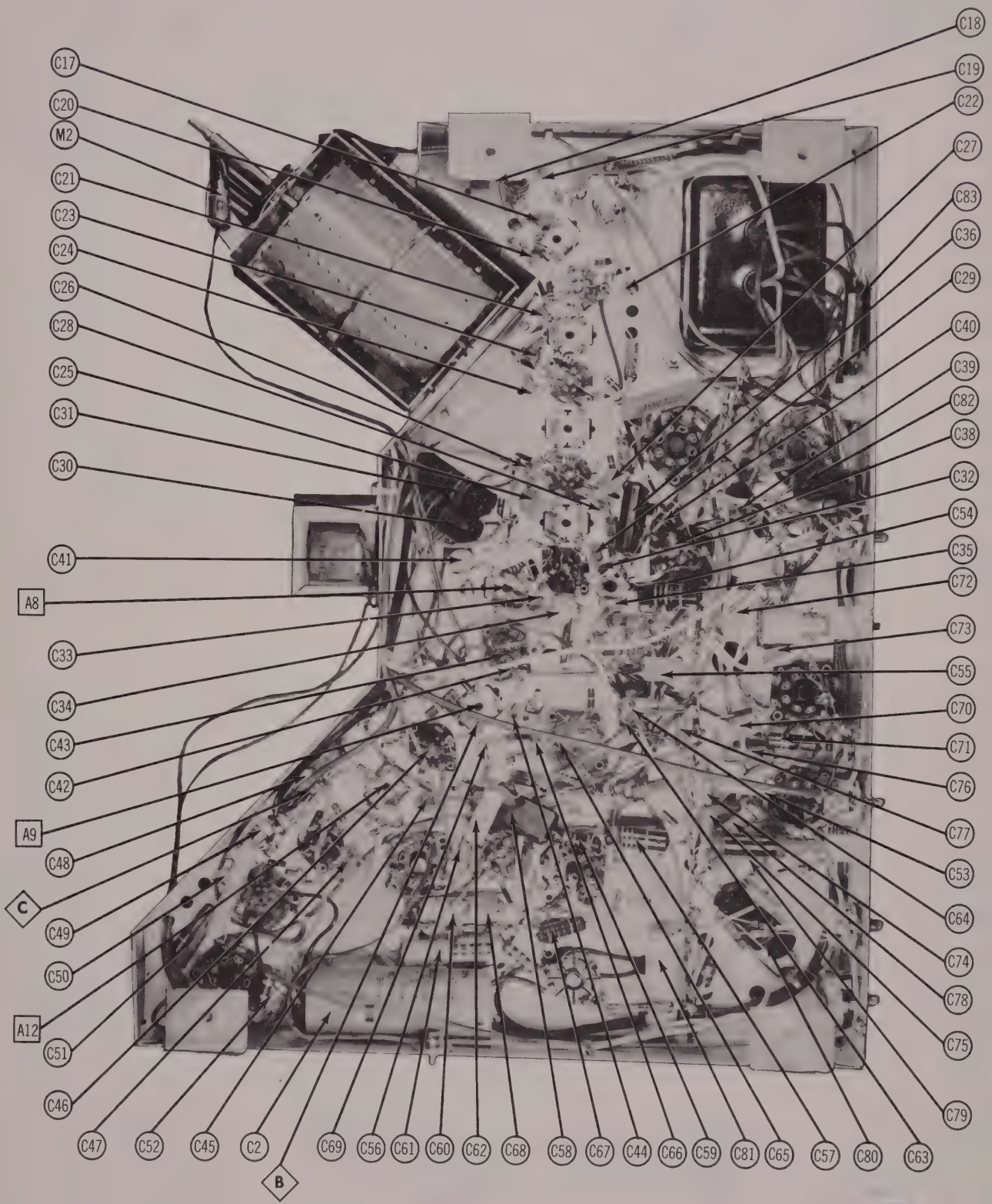
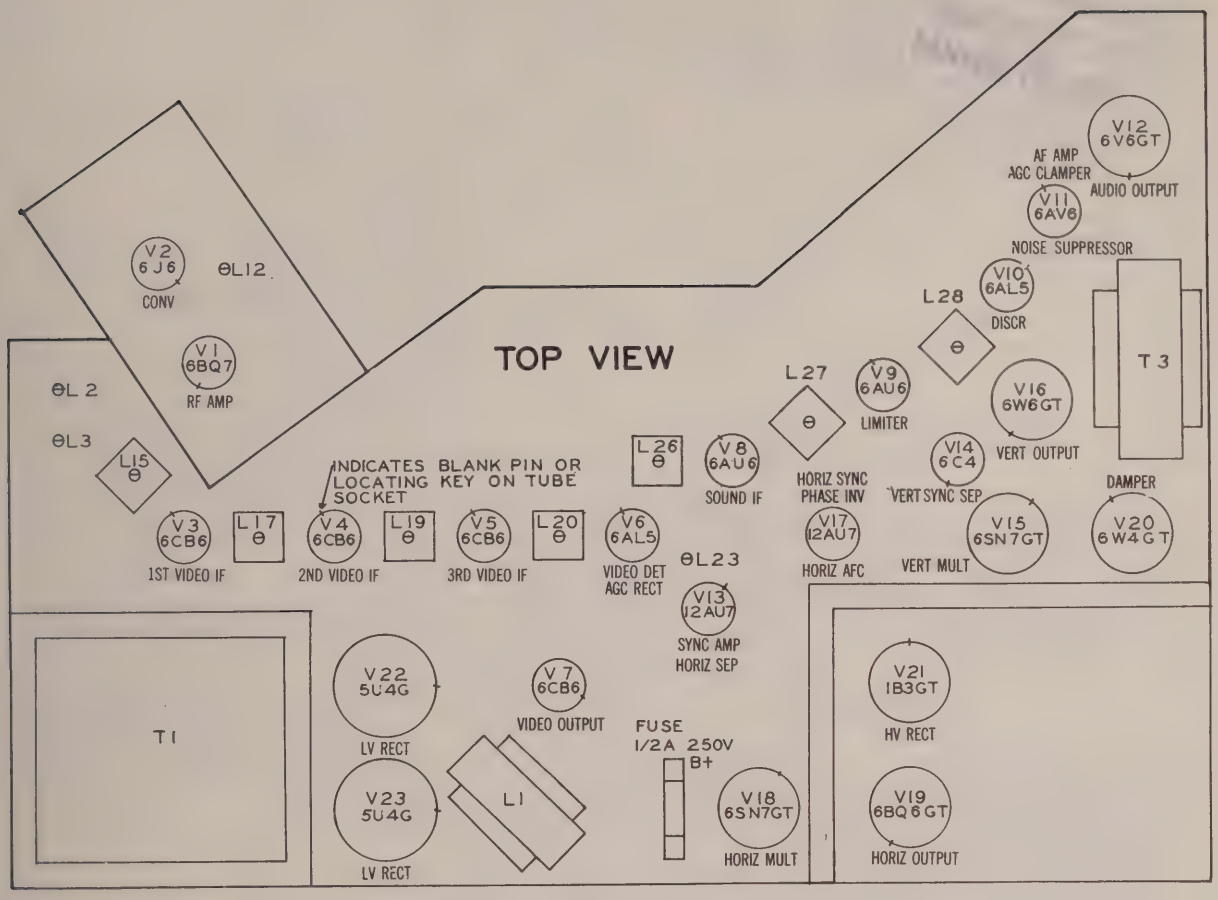


CHASSIS TOP VIEW



CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION

TUBE PLACEMENT CHART



TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No raster, no sound - V22, V23, Fuse (M1)

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster - V2, V3, V4, V5, V6
No pic, no sound, has snow - V1, V2, V3
No pic, has sound, has raster - V7, V24
Has pic, no sound - V8, V9, V10, V11, V12
Overloaded picture - V6, V11

SYNC FAILURE
No vert. sync - V14, V15
No horiz. sync - V13, V17, V18
No vert. or horiz. sync - V13

SWEEP FAILURE
No raster, has sound - V18, V19, V20, V21, V24
No vertical deflection - V15, V16
Poor Vert. linearity or foldover - V15, V16
Poor Horiz. linearity or foldover - V18, V19, V20
Narrow picture - V18, V19, V20, V21, V22, V23
Vert. off freq. - V14, V15
Horiz. off freq. - V13, V17, V18

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The high voltage shock hazard can be eliminated by removing the horizontal oscillator tube (V18).
Deflection yoke assembly should be connected to avoid overheating of 6BQ6 (V19) screen resistor.

VIDEO IF ALIGNMENT

Remove the converter tube (V2) from its socket and replace with a 6J6 that has pin 1 removed.
This will disable the local oscillator and reduce the possibility of erroneous indications.
Connect the negative lead of a 3 volt battery to the ungrounded side of C30. Connect the positive lead to chassis.
If two peaks are noted during adjustment of slugs use the one where slug is nearest bottom of chassis.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Direct	High side to an ungrounded tube shield floating over dummy converter tube. Low side to chassis.	Not used	45.25MC	Any	Use VTVM. DC probe to point (A). Common to chassis.	A1	Adjust for maximum deflection. Attenuate generator output to maintain approximately 2 volts at VTVM.
2.	"	"	"	42.75MC	"	"	A2, A3	"
3.	"	"	"	45.25MC	"	"	A4, A5	"
4.	"	"	"	41.25MC	"	"	A6	Adjust for MINIMUM deflection.
5.	"	"	"	47.25MC (400∿AM)	"	Vert. Amp. of scope to point (A). Low side to chassis.	A7	Adjust for MINIMUM 400∿ indication on scope.
6.	"	"	44MC (10MC Swp)	45.75MC	"	"		Check 45.75MC marker and if necessary adjust A7 to place marker 60% to 70% down on response curve.
7.	"	"	"	41.25MC 45.75MC 47.25MC	"	"		Check for response curve similar to Fig. 1. If bandwidth or tilt is not as indicated in response curve, repeat alignment. If bandwidth is still unsatisfactory retouch A1 thru A5.

SOUND IF ALIGNMENT

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
8.	.01MFD	High side to pin 7 (plate) of 6AL5 (V6). Low side to chassis.	Not used	4.5MC (Unmod:)	Any	Use VTVM. DC probe to point (B). Common to chassis.	A8, A9, A10	Adjust for maximum deflection. Attenuate generator to maintain 1 volt at VTVM.
9.	"	"	4.5MC (450KC Swp)	4.5MC	"	Vert. Amp. of scope thru 10KΩ to point (C). Low side to chassis.	A11, A12	Adjust A11 so that 4.5MC occurs at center of crossover lines as in Fig. 2. Adjust A12 for maximum amplitude and straightness of crossover lines.

OSCILLATOR ALIGNMENT

Remove the dummy converter tube and replace the original 6J6 in its socket.
The individual channel soscillator adjustment screws are reached through a hole just to the right of the channel switch shaft.
The correct adjustment screw is accessible through this hole as the channel switch is turned to each channel.
Connect 3 volt bias battery as under Video IF Alignment.
Also, connect negative lead to ungrounded side of C31.
Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Set the fine tuning control to the mid-position of its range.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
10.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	213MC (10MC Swp)	211.25MC 215.75MC	13	Vert. amp to point (A) Low side to chassis.	A13	Adjust to place sound marker in trap notch as in Fig. 3. Video marker should be from 30 to 40% on response curve.
			207MC (10MC Swp)	205.25MC 209.75MC	12		A14	
			201MC (10MC Swp)	199.25MC 203.75MC	11		A15	
			195MC (10MC Swp)	193.25MC 197.75MC	10		A16	
			189MC (10MC Swp)	187.25MC 191.75MC	9		A17	
			183MC (10MC Swp)	181.25MC 185.75MC	8		A18	
			177MC (10MC Swp)	175.25MC 179.75MC	7		A19	
			85MC (10MC Swp)	83.25MC 87.75MC	6		A20	
			79MC (10MC Swp)	77.25MC 81.75MC	5		A21	
			69MC (10MC Swp)	67.25MC 71.75MC	4		A22	
			63MC (10MC Swp)	61.25MC 65.75MC	3		A23	
			57MC (10MC Swp)	55.25MG 59.75MC	2		A24	

ALIGNMENT INSTRUCTIONS (CONT.)

RF AND MIXER ALIGNMENT

Leave bias battery connected as under Oscillator Alignment.
Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
11.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	207MC (10MC Swp)	205.25MC 209.75MC	12	Vert. Amp. thru 10KΩ to point (D). Low side to chassis.	A25, A26, A27	Adjust for curve of maximum amplitude and bandwidth similar to Fig. 4.
12.	"	"	213MC (10MC Swp)	211.25MC 215.75MC	13	"		Check for response similar to Fig. 4. If markers fall below 70% on any channel make compromise adjustments of A25, A26, and A27 with channel switch set to that channel, then check all other channels to see that they have not been seriously affected.
			201MC (10MC Swp)	199.25MC 203.75MC	11			
			195MC (10MC Swp)	193.25MC 197.75MC	10			
			189MC (10MC Swp)	187.25MC 191.75MC	9			
			183MC (10MC Swp)	181.25MC 185.75MC	8			
			177MC (10MC Swp)	175.25MC 179.75MC	7			
			85MC (10MC Swp)	83.25MC 87.75MC	6			
			79MC (10MC Swp)	77.25MC 81.75MC	5			
			69MC (10MC Swp)	67.25MC 71.75MC	4			
			63MC (10MC Swp)	61.25MC 65.75MC	3			
			57MC (10MC Swp)	55.25MC 59.75MC	2			

IF TRAP ALIGNMENT

If tunable trap is provided for the purpose of reducing IF interference from nearby transmitters operating near 40MC.
Tune to channel 2 and if interference is noted adjust A28 to minimize the interference. If no interference is noted turn A28 all the way in.

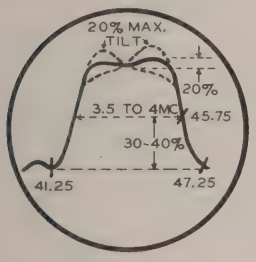


FIG. 1.

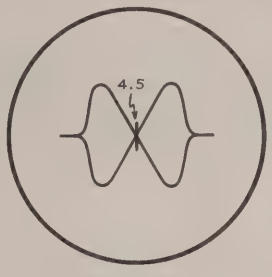


FIG. 2

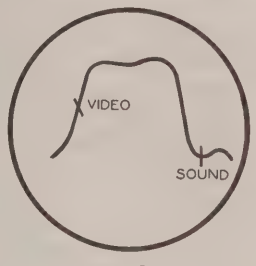


FIG. 3

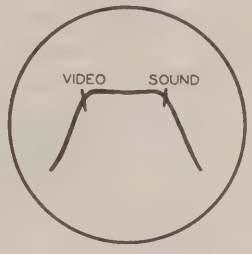
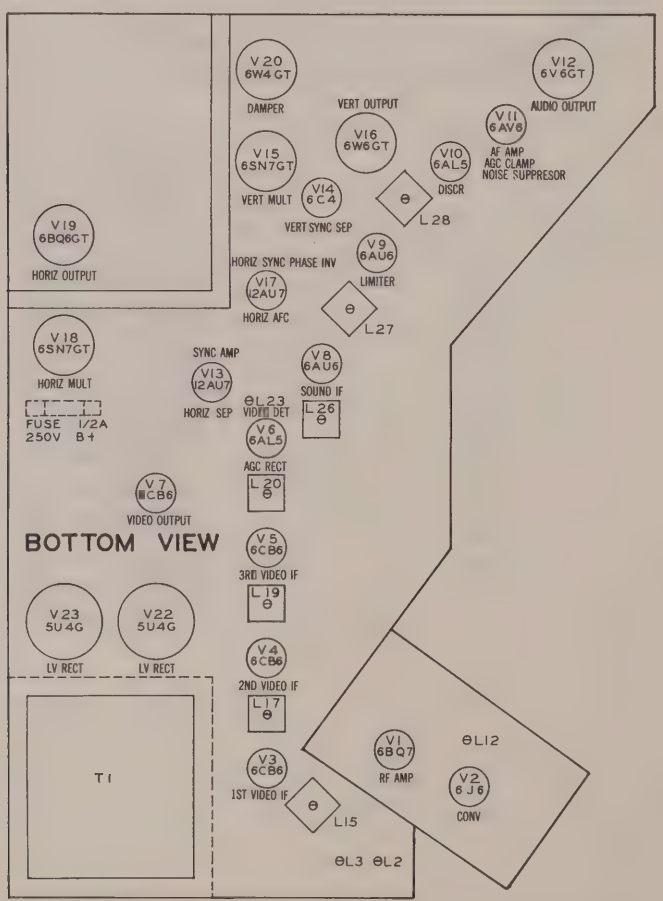


FIG. 4

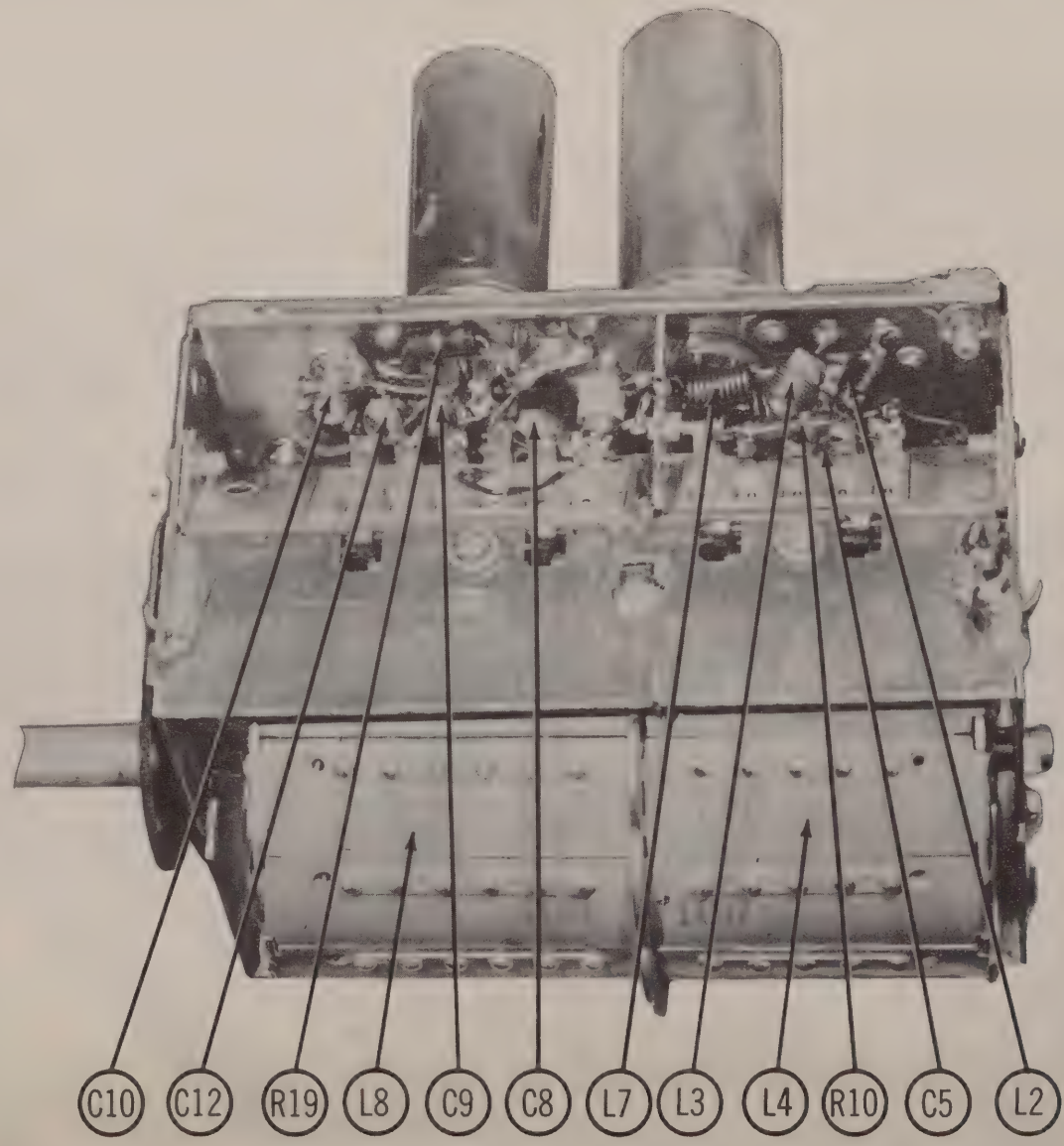
RESISTANCE MEASUREMENTS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6BQ7	INF	2. 1Meg	0Ω	. 1Ω	0Ω	†1KΩ	† 220KΩ	INF	0Ω
V 2	6J6	† 6KΩ	† 16KΩ	. 1Ω	0Ω	235KΩ	10KΩ	0Ω		
V 3	6CB6	1Meg	56Ω	0Ω	. 1Ω	† 1. 7KΩ	† 1. 7KΩ	0Ω		
V 4	6CB6	1Meg	47Ω	0Ω	. 3Ω	† 1. 7KΩ	† 1. 7KΩ	0Ω		
V 5	6CB6	. 1Ω	220Ω	0Ω	. 5Ω	† 555Ω	† 47KΩ	0Ω		
V 6	6AL5	. 1Ω	1. 1Meg	. 7Ω	0Ω	100KΩ	0Ω	3. 9KΩ		
V 7	6CB6	1. 2Meg	700Ω	0Ω	. 1Ω	† 6. 8KΩ	† 1. 2KΩ	700Ω		
V 8	6AU6	1Meg	0Ω	0Ω	. 1Ω	† 1. 7KΩ	† 1. 7KΩ	220Ω		
V 9	6AU6	47KΩ	0Ω	0Ω	. 1Ω	† 1. 7KΩ	9KΩ	0Ω		
V 10	6AL5	0Ω	100KΩ	. 1Ω	0Ω	180KΩ	0Ω	100KΩ		
V 11	6AV6	10Meg	0Ω	0Ω	. 1Ω	2. 1Meg	2. 1Meg	† 220KΩ		
V 12	6V6GT	INF	0Ω	† 1. 8KΩ	† 1. 5KΩ	470KΩ	† 0Ω	. 1Ω	470Ω	
V 13	12AU7	† 33KΩ	14KΩ	0Ω	0Ω	0Ω	6KΩ	2. 3Meg	0Ω	. 1Ω
V 14	6C4	† 10Meg	INF	. 1Ω	0Ω	† 10Meg	2. 4Meg	0Ω		
V 15	6SN7GT	1. 4Meg	† 1. 4Meg	2. 2KΩ	147Ω	† 150KΩ	2. 2KΩ	0Ω	. 1Ω	
V 16	6W6GT	600KΩ	0Ω	† 385Ω	† 385Ω	2. 2Meg	430Ω	. 1Ω	900Ω	
V 17	12AU7	22KΩ	260KΩ	100KΩ	0Ω	0Ω	† 3. 4KΩ	330KΩ	4. 7KΩ	. 1Ω
V 18	6SN7GT	2. 4Meg	† 7. 5KΩ	1KΩ	230KΩ	†165KΩ	1KΩ	0Ω	. 1Ω	
V 19	6BQ6GT	INF	0Ω	INF	† 6. 8KΩ	470KΩ	470KΩ	. 1Ω	100Ω	TOP CAP #30Ω
V 20	6W4GT	INF	INF	100KΩ	INF	† 95Ω	INF	#18Ω	#18Ω	
V 21	1B3GT	PINS 1 TO 8 HAVE INF RESISTANCE								TOP CAP #460Ω
V 22	5U4G	220KΩ	14KΩ	10Ω	¶17Ω	2Ω	¶17Ω	. 1Ω	14KΩ	
V 23	5U4G	INF	14KΩ	† 47KΩ	¶16Ω	. 1Ω	¶16Ω	INF	14KΩ	
V 24	17LP4	0Ω	0Ω	PIN 6 540KΩ	PIN 10 #560KΩ	PIN 11 230KΩ	PIN 12 . 1Ω			

ALL CONTROLS SET FOR NORMAL OPERATION, NO SIGNAL APPLIED
† MEASURED FROM PINS 8 OF V22 AND V23.
# MEASURED FROM PIN 3 OF V20.
¶ MEASURE FROM -3 VDC LINE.



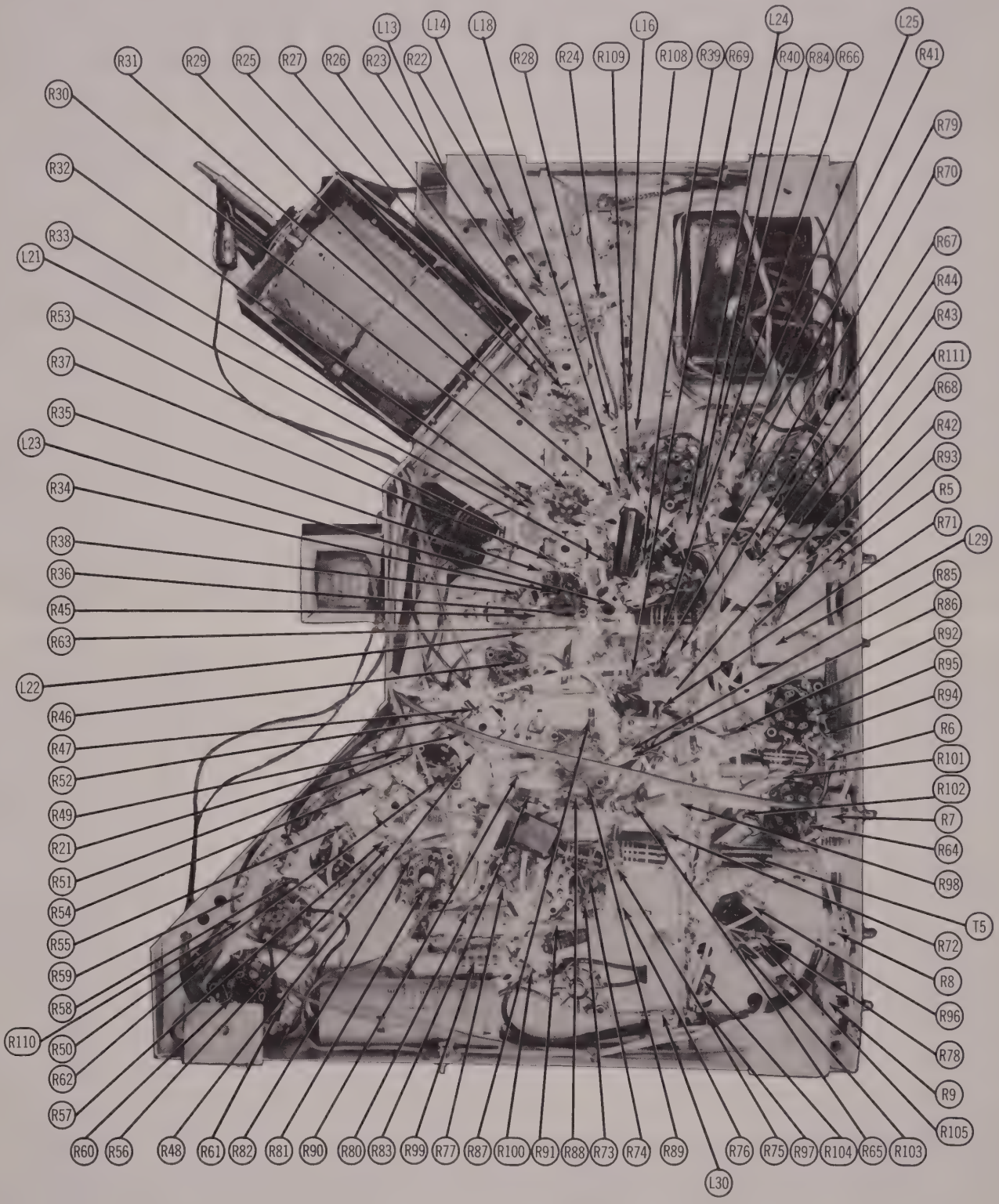
TUBE PLACEMENT CHART



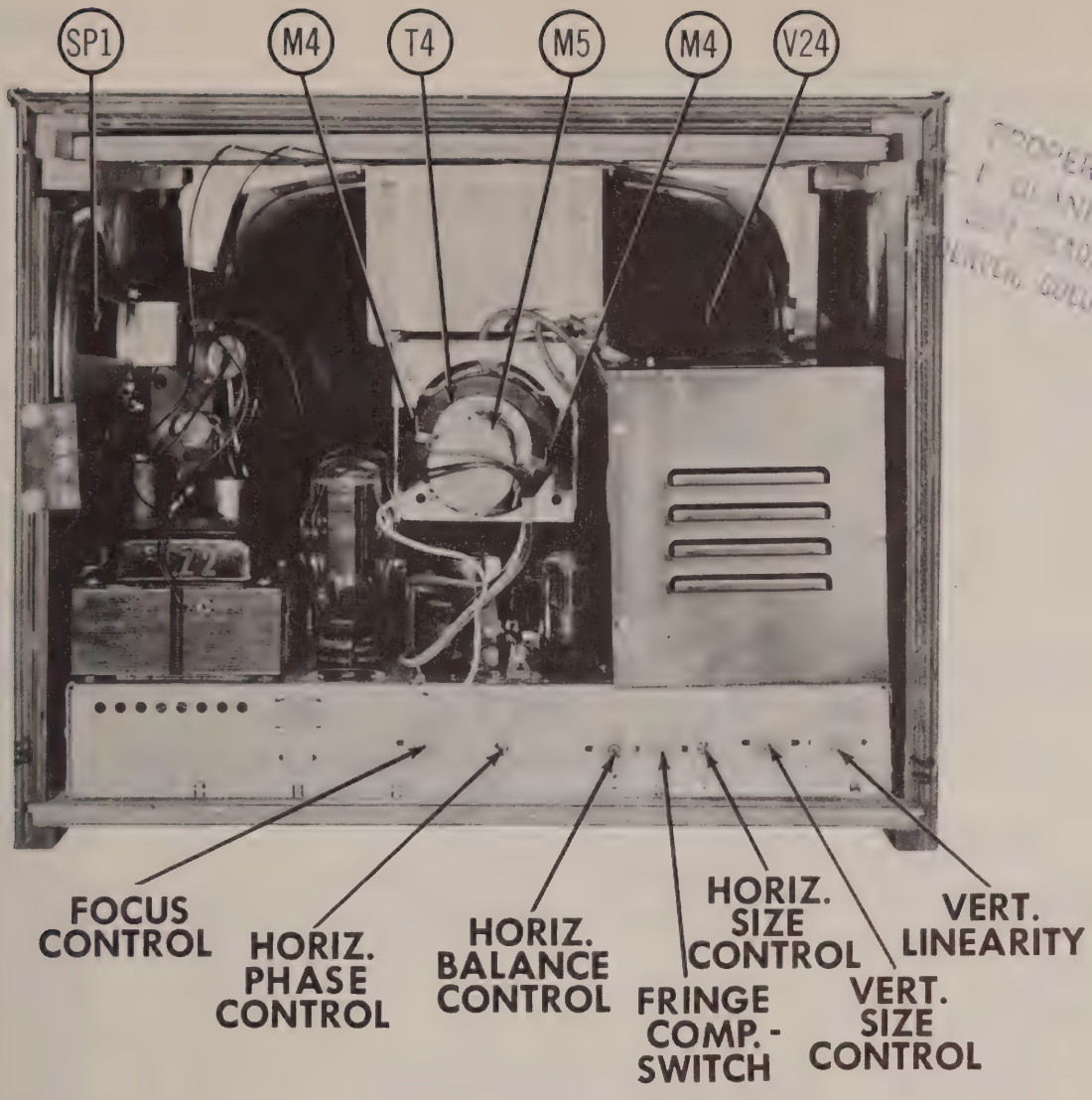
RF TUNER-RIGHT SIDE

PROPERTY OF

RF TUNER–BOTTOM VIEW



CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION



CABINET-REAR VIEW

PROPERTY OF

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably a test pattern.

Short the horizontal phase coil (White and yellow leads on terminal strip near fuse).

Short the horizontal control grid to chassis (Brown lead on same terminal strip).

Set the horizontal hold control to the center of its range.

Adjust the horizontal balance control until picture synchronizes horizontally.

Remove the short from the horizontal phase coil and adjust the phase slug (B1) for horizontal sync.

Remove the short from the horizontal control grid.

Adjust the horizontal size slug (B2) for a picture slightly wider than necessary to fill the picture mask horizontally.

FRINGE COMPENSATOR ADJUSTMENT

Turn set to a low frequency channel, or lowest high frequency channel received in that area.

Turn Fringe Compensator switch on and adjust to center of range.

Check all channels received in the area and readjust compensator for best overall performance.

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: EMERSON PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RTMA BASE TYPE	NOTES
V1	RF Amplifier	800065	6BQ7	9AJ	
V2	Converter	800536	6J6	7BF	
V3	1st. Video IF Amp.	800055	6CB6	7CM	
V4	2nd. Video IF Amp.	800055	6CB6	7CM	
V5	3rd. Video IF Amp.	800055	6CB6	7CM	
V6	Video Detector-AGC Rectifier	800541	6AL5	6BT	
V7	Video Output	800055	6CB6	7CM	
V8	Sound IF Amp.	800533	6AU6	7BK	
V9	Limiter	800533	6AU6	7BK	
V10	Discriminator	800541	6AL5	6BT	
V11	AF Amplifier-AGC Clamper-Noise Suppressor	800057	6AV6	7BT	
V12	Audio Output	800270	6V6GT	7S	
V13	Sync Amplifier-Horiz. Separator	800026	12AU7	9A	
V14	Vert. Sync Sep.	800064	6C4	6BG	
V15	Vert. Mult.	800380	6SN7GT	8BD	
V16	Vert. Output	800061	6W6GT	7S	
V17	Horiz. Sync-Phase Inverter-Horiz. AFC	800027	12AU7	9A	
V18	Horiz. Mult.	800380	6SN7GT	8BD	
V19	Horiz. Output	800059	6BQ6GT	6AM	
V20	Damper	800037	6W4GT	4CG	
V21	HV Rectifier	800450	1B3GT	3C	
V22	LV Rectifier	800290	5U4G	5T	
V23	LV Rectifier	800290	5U4G	5T	

CATHODE-RAY TUBE

ITEM No.	REPLACEMENT DATA: EMERSON PART No.	SYLVANIA PART No.		RTMA BASE TYPE	NOTES
V24		17LP4		12C	
		17VP4		12C	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: EMERSON PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C1A	▲80	300	925233	AFH2-64		BQ48		FP378	TVL-3792	
B	▲40	300		PRS450/4		BR445				
C	■5	450								
C2A	40	250	21V121	E59B218		C037				Blue
B	10	450				BRH501				Yellow
C	100	50								Green
D	80	300								Red
C3	3-8		960635		829-10					
C4	3-8		960635		829-10					
C5	3.3		960638	S13.3NP0	TCZ-3.3		NP0K-3R3	ZT-5533	5TCCB-V33	
C6	1000		960138	BPD-001	DD-102	TM5D1	801-001	DC-521	5HK-D1	
C7	.5-3		960634		829-3			CT565A		
C8	120		960136		D6-121	TM5T12	GP2K-121	UC-5312	5GA-T12	
C9	47			BPD-000047	D6-470	TM5Q5	GP1K-470	UC-5447	5GA-Q47	
C10	.5-3		960634		829-3			CT565A		
C11	1000		960138	BPD-001	DD-102	TM5D1	801-001	DC-521	5HK-D1	
C12	10		960636	S11ONP0	TCZ-10		NP0K-100	ZT-541	5TCC-Q1	
C13	5		960637	S15N750	TCN-5		N750K-050	NT-555	5TCU-V5	
C14	1000		960138	BPD-001	DD-102	TM5D1	801-001	DC-521	5HK-D1	
C15	6.8		960639	S16.8NP0	TCZ-6.8		NP0K-6R8	ZT-5568	5TCCB-V68	
C16	1000		960138	BPD-001	DD-102	TM5D1	801-001	DC-521	5HK-D1	
C17	5000		928109	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C18	39		928082				N750K-390			
C19	6.8		928084				N750K-6R8			
C20	1000		928077	BPD-001	DD-102	TM5D1	801-001	DC-511	5HK-D1	
C21	470		928081	S1470	D6-471		GP2K-471	UC-5347	5GA-T47	
C22	1000		928077	BPD-001	DD-102	TM5D1	801-001	DC-521	5HK-D1	
C23	1000		928077	BPD-001	DD-102	TM5D1	801-001	DC-521	5HK-D1	
C24	680		928076	S1680	D6-681		GP2K-681	UC-5368	5GA-T68	
C25	5000		928109	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C26	680		928076	S1680	D6-681		GP2K-681	UC-5368	5GA-T68	
C27	5000		928109	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C28	1000		928077	BPD-001	DD-102	TM5D1	801-001	DC-521	5HK-D1	
C29	22		928012	S122	D6-220	5W5Q25	GP1K-220	UC-5422	5GA-Q22	
C30	.22	200	922325	P488-22		PTE4P22		PT4025	2TM-P22	
C31	.22	200	922325	P488-22		PTE4P22		PT4025	2TM-P22	
C32	1000		928077	BPD-001	DD-102	TM5D1	801-001	DC-521	5HK-D1	
C33	5		928017	S15NP0	TCZ-4.7		NP0K-050	ZT-555	5TCCB-V47	
C34	.047	200	922354	P288-047	DF-503	PTE4S47		PT4147	2TM-S47	
C35	47			S147NP0	TCZ-47		NP0K-470	ZT-5447	5TCC-Q 47	
C36	.1	200	922315	P288-1	DF-104	PTE1P1		PT401	2TM-P1	
C37	5000		928109	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C38	5000		928109	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C39	.047	400	922554	P488-047	DF-503	PTE4S47		PT4147	4TM-S47	
C40	.01	600	922714	P688-01	D6-103	PTE6S1	GP2-333-103	PT611	6TM-S1	
C41	5000		928109	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C42	5000		928109	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C43	5000		928109	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C44	68	500	910221	1469-00007	D6-680	5W5Q7	GP1K-680	UC-5468	MS-47	
C45	5000		928109	BPD-005	DD-502	TM5D5	811-005	DC-521	5HK-D5	
C46	5000		928109	BPD-005	DD-502	TM5D5	811-005	DC-521	5HK-D5	
C47	110	500	910043							
C48	.001	600	922713	P688-001	D6-102	PTE6D1	GP2L-102	PT621	6TM-D1	

CAPACITORS (CONT.)

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: EMERSON PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C49	.0047	600	922753	P688-0047	D6-472	PTE6D47	GP2-333-472	PT6247	6TM-D47	
C50	.001	600	922715	P688-001	D6-102	PTE6D1	GP2L-102	PT621	6TM-D1	
C51	.047	400	922554	P488-047	DF-503	PTE4S47		PT4147	4TM-S47	
C52	.0047	600	922753	P688-0047	D6-472	PTE6D47	GP2-333-472	PT6247	6TM-D47	
C53	.01	400	922514	P488-01	D6-103	PTE4S1	GP2-333-103	PT411	4TM-S1	
C54	.047	400	922554	P488-047	DF-503	PTE4S47		PT4147	4TM-S47	
C55	220	500	910062	1468-00025	D6-221	5W5Q25	GP2K-221	MC240	1FM-325	
C56	47	500	910058	1469-00005		5R5Q5		MCB225	MS-45	
C57	.047	400	922554	P488-047	DF-503	PTE4S47		PT4147	4TM-S47	
C58	.047	200	922354	P288-047	DF-503	PTE4S47		PT4147	2TM-S47	
C59	.0047	600	922753	P688-0047	D6-472	PTE6D47	GP2-333-472	PT6247	6TM-D47	
C60	.047	600	922654							
C61	.1	600	922715	P688-1	DF-104	PTE6P1		PT601	6TM-P1	
C62	.01	600	922714	P688-01	D6-103	PTE6S1	GP2-333-103	PT611	6TM-S1	
C63	82	500	910064							
C64	470	500	910063	1468-0005	D6-471	5W5T5	GP2K-471	MC245	1FM-35	
C65	470	500	910063	1468-0005	D6-471	5W5T5	GP2K-471	MC245	1FM-35	
C66	390	500	910212	1466-0004	D6-391	5W5T4	GP2K-391	MC243	1FM-34	
C67	.0022	400	922533	P888-0022	D6-222	PTE6D22	GP2-333-222	PT6222	6TM-D22	
C68	.001	600	922713	P888-001	D6-102	PTE6D1	GP2L-102	PT621	6TM-D1	
C69	.001	600	922713	P688-001	D6-102	PTE6D1	GP2L-102	PT621	6TM-D1	
C70	.001	600	922713	P688-001	D6-102	PTE6D1	GP2L-102	PT621	6TM-D1	
C71	.015	200	922330	P288-015				TP400	6TM-S15	
C72	.0047	600	922039	1464-005		1DR5D5		MCB465	MS-25	
C73	470	500	910063	1469-0005		5R5T5		MCB245	MS-35	
C74	220	500	910028	1469-00025		5R5T25		MCB240	MS-325	
C75	820	500	910218							
C76	.015	200	922220							
C77	470	500	910063	1468-00025	D6-221	5W5T25	GP2K-221	MC245	1FM-325	
C78	.001	600	922713	P688-001	D6-102	PTE6D1	GP2L-102	PT621	6TM-D1	
C79	.1	400	922515	P488-1	DF-104	PTE4P1		PT401	4TM-P1	
C80	.22	200	922325	P488-22		PTE4P22		PT4025	2TM-P22	
C81	.1	600	922715	P688-1		PTE6P1		PT601	6TM-P1	
C82	.05	400	922200	489ZGXY-05		PJ435		PT415	4TM-S5	
C83	.05	400	922200	489ZGXY-05		PJ435		PT415	4TM-S5	

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: EMERSON PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1500Ω		390207	QJ-410*	RTV-378		UF152L †	Contrast-Panel
B	1Meg						UR16A †	Volume - Rear
C	Switch						US-26 †	Attach to R1A
R2A	200KΩ		390208	QII-129	AG-52-S	AB-46	U-43	Brightness
B	Shaft		Not Req.	Not Req.	KSS-3	AK-4	Not Req.	Attach to R2A
R3A	1Meg		390211	QII-137	AG-61-S	AB-69	U-54	Vert. Hold
B	Shaft		Not Req.	Not Req.	KSS-3	AK-4	Not Req.	Attach to R3A
R4A	50KΩ		390209	QII-123	AG-44-S	AB-31	U-35	Horiz. Hold
B	Shaft		Not Req.	Not Req.	KSS-3	AK-4	Not Req.	Attach to R4A
R5A	2Meg		390196	QII-139	AG-83-S	AB-75	SU-56	Focus
B	Shaft		Not Req.	Not Req.	FKS-1/4	AK-1	Not Req.	Attach to R5A
R6A	200KΩ		390219	QII-129	AG-52-S	AB-46	U-43	Horiz. Balance
B	Shaft		Not Req.	Not Req.	FKS-1/4	AK-1	Not Req.	Attach to R6A
R7A	2Meg		390202	QII-139	AG-83-S	AB-75	SU-56	Fringe Compensator
B	Shaft		Not Req.	Not Req.	FKS-1/4	AK-1	Not Req.	Attach to R7A
C	Switch		Not Req.	76-1	SWB	KB-1	US-26	Attach to R7A
R8A	2Meg		390196	QII-139	AG-83-S	AB-75	SU-56	Vert. Size
B	Shaft		Not Req.	Not Req.	FKS-1/4	AK-1	Not Req.	Attach to R8A
R9A	5000Ω	2	390197	WK-5000	A43-5000	VK-135	R5000L	Vert. Linearity-Wire Wound
B	Shaft		Not Req.	Not Req.	FKS-1/4	Not Req.	Not Req.	Attach to R9A

† Universal Replacement - (Mallory exact duplicate part #UEI985)
* CONCENTRIKIT EQUIVALENT - KIT K-2, BASE ELEMENTS & SHAFTS B17-109 & P2-116 (Panel)
B13-137 & R1-202 (Rear) & SWITCH 76-1

RESISTORS

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: EMERSON PART No.	IRC PART No.	NOTES
R10	15KΩ			BTS-15K	
R11	47KΩ				
R12	100KΩ				
R13	330KΩ				
R14	470Ω			BTS-470	
R15	180KΩ			BTS-180K	
R16	15KΩ				Note 1
R17	220KΩ			BTS-220K	
R18	15KΩ				
R19	10KΩ			BTS-10K	
R20	4700Ω			BTS-4700	
R21	470Ω			BTS-470	
R22	15Ω		340052		
R23	470Ω		350412	BTS-470	
R24	56Ω		340192		
R25	470Ω		350412	BTS-470	
R26	470Ω		350412	BTS-470	
R27	33KΩ		340852		
R28	47Ω		340172		
R29	470Ω		350412	BTS-470	
R30	22KΩ		340812		
R31	220Ω		340332	BTS-220	
R32	47KΩ		340892	BTS-47K	
R33	470Ω		350412	BTS-470	
R34	100KΩ		350972	BTS-100K	
R35	1Meg		351212	BTS-1Meg	
R36	1Meg		351212	BTS-1Meg	
R37	1Meg		351212	BTS-1Meg	
R38	3900Ω		340834	BTS-3900	
R39	1Meg		351212	BTS-1Meg	

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: EMERSON PART No.	IRC PART No.	NOTES
R40	22KΩ		340812	BTS-22K	
R41	6800Ω 5%	2	770692	BTB-6800 5%	
R42	470KΩ		351132	BTS-470K	
R43	470KΩ		351132	BTS-470K	
R44	560KΩ	1		BTA-560K	Note 2
R45	8200Ω		340712		
R46	220Ω		340332	BTS-220	
R47	470Ω		350412	BTS-470	
R48	47KΩ		350892	BTS-47K	
R49	1Meg		351212	BTS-1Meg	
R50	10KΩ		340732	BTS-10K	
R51	6800Ω		340692	BTS-6800	
R52	22KΩ	1	370812	BTA-22K	
R53	10Meg		351452	BTS-10Meg	
R54	470Ω		350412	BTS-470	
R55	68KΩ		350932	BTS-68K	
R56	100KΩ		340972	BTS-100K	
R57	100KΩ		340972	BTS-100K	
R58	10Meg		351452	BTS-10Meg	
R59	220KΩ		351052	BTS-220K	
R60	470KΩ		351132	BTS-470K	
R61	470Ω	1	370412	BTA-470	
R62	1500Ω	2	790532	BTB-1500	
R63	10KΩ		350732	BTS-10K	
R64	100KΩ		350972	BTS-100K	
R65	33KΩ	1	380852	BTA-33K	
R66	100KΩ		350972	BTS-100K	
R67	10KΩ		350732	BTS-10K	
R68	2.2Meg		351292	BTS-2.2Meg	
R69	22KΩ	1	370812	BTA-22K	

RESISTORS (CONT.)

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: EMERSON PART No.	IRC PART No.	NOTES
R70	6800Ω		340692	BTS-6800	
R71	100KΩ		350972	BTS-100K	
R72	10Meg		351452	BTS-10Meg	
R73	100Ω		340252	BTS-100	
R74	47Ω				Note 3
R75	150KΩ	1	371012	BTA-150K	
R76	2200Ω		340572	BTS-2200	
R77	820KΩ		341192	BTS-820K	
R78	1Meg		351212	BTS-1Meg	
R79	47KΩ		340892	BTS-47K	
R80	12KΩ		340752	BTS-12K	
R81	2.2Meg		351292	BTS-2.2Meg	
R82	470Ω		350412	BTS-470	
R83	100KΩ		350972	BTS-100K	
R84	100KΩ		350972	BTS-100K	
R85	330KΩ		351092	BTS-330K	
R86	4700Ω		340652	BTS-4700	
R87	2200Ω		340572	BTS-2200	
R88	82KΩ		340952	BTS-82K	
R89	82KΩ		340952	BTS-82K	
R90	100KΩ		350972	BTS-100K	

Note 1. Some Models use a 22KΩ resistor in this application.
Note 2. Some Models use a 680KΩ resistor in this application.
Note 3. Not used in all Models.
Note 4. Some Models use a 8200Ω resistor in this application.

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: EMERSON PART No.	IRC PART No.	NOTES
R91	22KΩ		340812	BTS-22K	
R92	2.2Meg		351292	BTS-2.2Meg	
R93	56000Ω 5%	1	360672	BTA-5600 5%	
R94	1000Ω		340492	BTS-1000	
R95	100KΩ		340972	BTS-100K	
R96	120KΩ	1		BTA-120K	
R97	2200Ω		340752	BTS-2200	
R98	8200Ω		340712	BTS-8200	
R99	47KΩ	1	370892	BTA-47K	
R100	47KΩ	1	370892	BTA-47K	
R101	470KΩ		351132	BTS-470K	
R102	68Ω		350212		
R103	100Ω	2	790252	BW-2-100	
R104	6800Ω	2	780692	BTB-6800	
R105	33KΩ		340852	BTS-33K	
R106	33Ω		340132		Note 3
R107	10KΩ	1		BTA-10K	Notes 3 - 4
R108	9.5Ω	5	394122		
R109	220KΩ		351052	BTS-220K	
R110	1250	10	394116	1-3/4A-1250	
R111	100KΩ	1	380972	BTA-100K	

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: EMERSON PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	RCA PART No.
T1	117VAC @ 1.8A	485VCT .275ADC	5VAC @ 6A	6.3VAC @1.2A SEC. 4 12.6VCT @ 4.6A	730039					

TRANSFORMER (SWEEP CIRCUITS)

ITEM No.	RATING: DC RESISTANCE PRI.	RATING: DC RESISTANCE SEC.	REPLACEMENT DATA: EMERSON PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	RCA PART No.	NOTES
T2	460Ω tap @30Ω	46Ω tap @5Ω, 17Ω SEC. 2 0Ω		A-8130 ① ②	HVO-7 ② ③	TFB-5 ④	D-19	231T1 ③	Horiz. Output Trans.
T3	298Ω Tap @ 8Ω		738066	A-8115 ⑤ ⑥	A-3038 ⑥	TSO-2 ⑤ ⑥	A-101U ⑥	204T2 ⑤ ⑥	Vert. Output Trans.
T4A	27Ω		708137	DY-11 ⑦		TY-7 ⑦	Y-19 ⑦		Horiz. Deflection Coils
B	49Ω		708163 ⑧						Vert. Deflection Coils
T5	4Ω		708156 ⑧				WC-12	213R1	Width Coil

① Use with Width Coil WC-5.
② Wire as shown on installation schematic #1.
③ Use with Width Coil MWC-1.
④ Use with Width Coil TWL-1.
⑤ Drill new mounting holes.
⑥ Alternate Deflection Yoke.
⑦ Use original deflection coil network.
⑧ Connect as Auto Trans.
⑨ See instruction sheet packed with unit for terminal connections.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: EMERSON PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	NOTES
T6	6.5KΩ	3.6Ω	280Ω	.86Ω	734084	A-3877 ①	A-2930 ①	RO-9 ①	S-3X ①	① Drill one new mounting hole.

SPEAKER

ITEM No.	RATINGS: SIZE	RATINGS: FIELD	RATINGS: V. C. IMP.	REPLACEMENT DATA: EMERSON PART No.	JENSEN PART No.	QUAM PART No.	NOTES
SP1	6"	PM	3.6Ω	180041C	ST-108 Mod. P6-X	6A1	

FILTER CHOKE

ITEM No.	RATINGS: TOTAL DIRECT CURRENT	RATINGS: D.C. RESISTANCE	RATINGS: INDUCTANCE (0 CURRENT 1000 ~/~)	REPLACEMENT DATA: EMERSON PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.
L1	160A	86Ω	1.8HY	737016	C-2327 ①	C-2991 ①	TR-1733 ①	C-21X

① Drill one new mtg. hole.

EMERSON
MODELS 721D, 728D (Ch. 120166-D)

PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA			NOTES
		PRI.	SEC.	EMERSON PART No.	MERIT PART No.	IRC PART No.	
L2	IF Trap	0Ω					Wound on 68MMF capacitor
L3	IF Trap	0Ω					Wound on 68MMF capacitor
L4	Ant. Coils	0Ω CT	0Ω				
L5	RF Choke	1Ω					
L6	Fil. Choke	0Ω					
L7	Neutralizing Coil	0Ω					
L8	RF, Mixer Grid & Osc. Coils	0Ω					
L9	Fil. Choke	0Ω					
L10	Feedback Coil	1.4Ω					6.8 Microhenries
L11	RF Choke	0Ω					
L12	Conv. Plate	0Ω	0Ω				
L13	Adj. Channel Sound Trap	0Ω		720166			
L14	Sound Carrier Trap	0Ω		720149			
L15	1st. Video IF	.1Ω		720156			
L16	Fil. Choke	.44Ω		705020		CLA	.68 Microhenry
L17	2nd. Video IF	.1Ω	.1Ω	720155			
L18	Fil. Choke	.44Ω		705020		CLA	.68 Microhenry
L19	3rd. Video IF	.1Ω	.1Ω	720155			
L20	4th. Video IF	.1Ω	.1Ω	720155			
L21	Fil. Choke	.44Ω		705020		CLA	.68 Microhenry
L22	Series Peaking Coil	2.8Ω		705014	TV-180		20 Microhenries
L23	4.5MC Trap	2.2Ω		708164	TV-151		
L24	Series Peaking Coil	17.5Ω		708114	TV-188		440 Microhenries
L25	Shunt Peaking Coil	17.5Ω		708114	TV-188		440 Microhenries
L26	Sound-Take-off	10.5Ω	3.1Ω	720157	TV-113 ■		Includes 500 Microhenries Shunt Peaking Coil
L27	Sound IF	2.2Ω	2.2Ω	720081	TV-113		
L28	Discriminator	1.8Ω	1.6Ω	708018 *	TV-114 ▲		
L29	Horiz. Osc.	48Ω		716074	TV-163		
L30	RF Choke	8.2Ω		705021		CL-1	10 Microhenries

* Alternate part #708151
■ Add 500 microhenries shunt peaking coil, Merit part #TV-188
▲ Use adaptor plate.

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			EMERSON PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1	3AG	1/2 A 250V	808003		312.500 (3AG-1/2A)	357001	AGC-1/2	4405

DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		NOTES
					EMERSON PART No.		
M2	Bayonet	6-8	.15	Brown	807000		Type #47

MISCELLANEOUS

ITEM No.	PART NAME	EMERSON PART No.	NOTES
M3	RF Tuner	470688	
M4	Centering Magnet	708149	
M5	Ion Trap	708129	
	Cabinet	140476	Model 721D
	Cabinet	140496	Model 728D
	Mask	460296	Model 721D
	Mask	460381	Model 728D
	Safety Glass	635037	Model 721D
	Safety Glass	520159	Model 728D
	Knob	460324	Channel Selector (Skirt)
	Knob	450148	Channel Selector (Shank)
	Knob	450149	Fine Tuning
	Knob	450151	Off/On Volume
	Knob	450152	Contrast

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

Touch-up adjustments of the RF Tuner Oscillator Circuit may be accomplished by removal of the Channel Selector and Fine Tuning knobs. The adjustment are accessible, one a time, through the small hole in the cabinet to the right of the channel selector shaft.

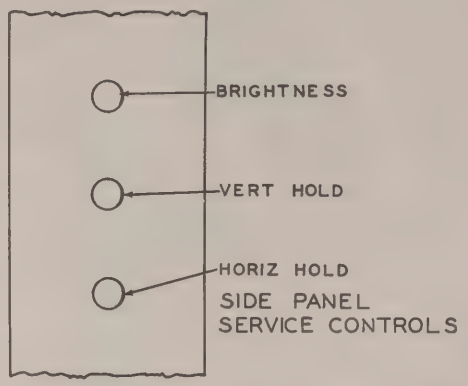
PICTURE TUBE SAFETY GLASS CLEANING

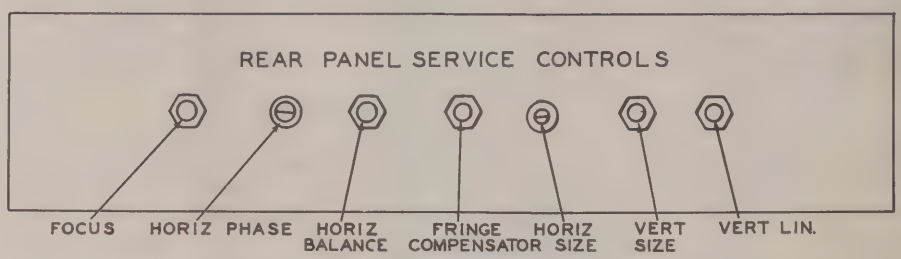
Remove 4 wood screws and a metal strip holding safety glass. Remove safety glass. Use extreme caution when removing glass.

PICTURE TUBE REMOVAL

For picture tube removal it is necessary to remove chassis. (See disassembly instructions.)

SERVICE ADJUSTMENT LOCATION





SPECIAL ADJUSTMENTS - FRINGE COMPENSATOR

Adjust for best overall performance on all channels received. For location see rear service panel control chart above.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

A minor adjustment of Horiz. phase slug can be made from the rear of chassis. For location see rear panel service control chart above. For complete oscillator alignment see Horiz. Sweep Circuit Adjustments on page 13.

SOUND IF DETECTOR BUZZ ADJ.

To eliminate Sound IF Detector buzz, adjust the Ratio Detector Secondary (L28) located on top of chassis. (See tube placement chart).

FUSES

One fuse is used for LV power supply protection. For location see tube placement chart.

CENTERING

Centering is accomplished mechanically consisting of two magnetized rings around the neck of the picture tube. Rotate the two rings together until picture is properly centered.

DISASSEMBLY INSTRUCTIONS

1. Remove 4 push on control knobs from right side of cabinet.
2. Remove 6 wood screws. Remove rear cover.
3. Remove 2 wood screws. Remove antenna bracket.
4. Disconnect speaker. Remove 2 nuts. Remove speaker.
5. Disconnect CRT socket, HV lead, 2 horiz. yoke leads (top of HV cage), and vert. yoke from chassis.
6. Remove 1 screw. Remove ground strap from HV cage.
7. Remove 4 chassis bolts. Remove chassis.

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MODEL 13-G-107

FIRESTONE MODELS
13-G-107, 13-G-108, 13-G-109, A, 13-G-122

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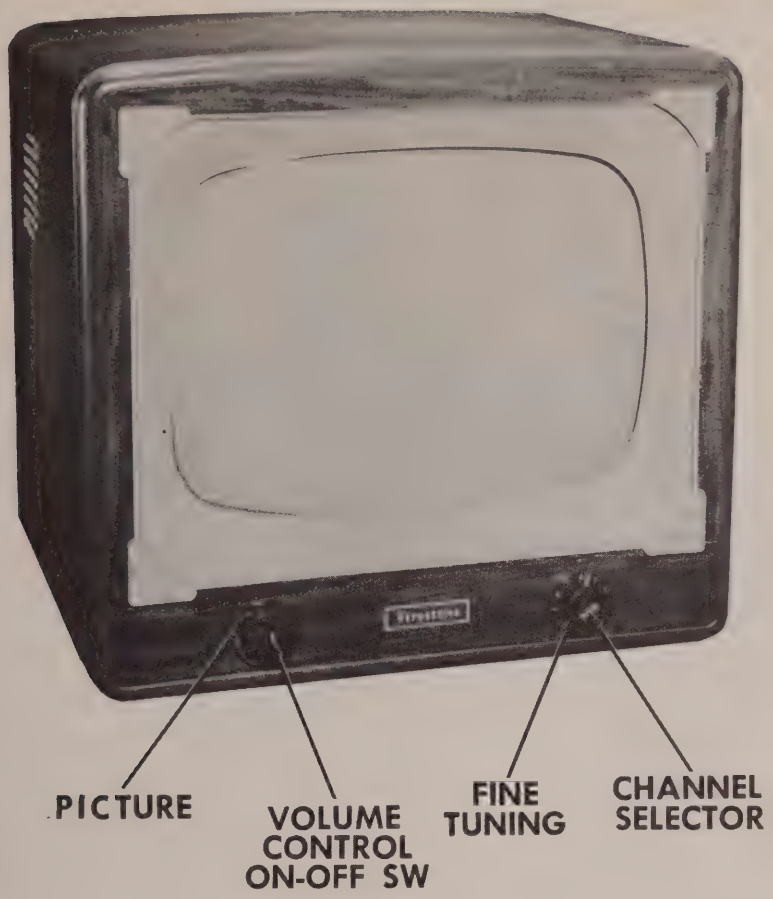

FIRESTONE 13-G-107

TRADE NAME	Firestone Models 13-G-107, 13-G-108 (Code 105-2-700140), 13-G-109, 13-9-109A (Code 105-2-700100, 700104, 13-G-122 (Code 105-2-700140), Also, Code Nos. 105-2-700120, 700144, 700150
SUPPLIER	Firestone Tire & Rubber Co., 1200 Firestone Parkway, Akron, Ohio
TYPE SET	Television Receiver
TUBES	Twenty
POWER SUPPLY	110-120 Volts AC-60 Cycle RATING 1.78 Amp. @ 117 Volts AC
TUNING RANGE	Channels 2 thru 13, Video IF 25.7MC, Sound IF 21.2MC (Intercarrier)

INDEX

Alignment Instructions 6
Disassembly Instructions 18
Horizontal Sweep Circuit Adjustments 13
Parts List and Descriptions 14, 15, 16
Photographs
Cabinet - Rear View 13
Capacitor and Alignment Identification 4, 9
Chassis - Top View 3
RF Tuner 7
Photographs (Cont)
Resistor and Inductor Identification 12, 17
Resistance Measurements 8
Schematic (Alternate Tuners) 10, 11
Schematic (TV) 2
Servicing in the Field 18
Tube Failure Check Chart 5
Tube Placement Chart (Bottom View) 8
Tube Placement Chart (Top View) 5

FIRESTONE MODELS
13-G-107, 13-G-108, 13-G-109, A, 13-G-122

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed."
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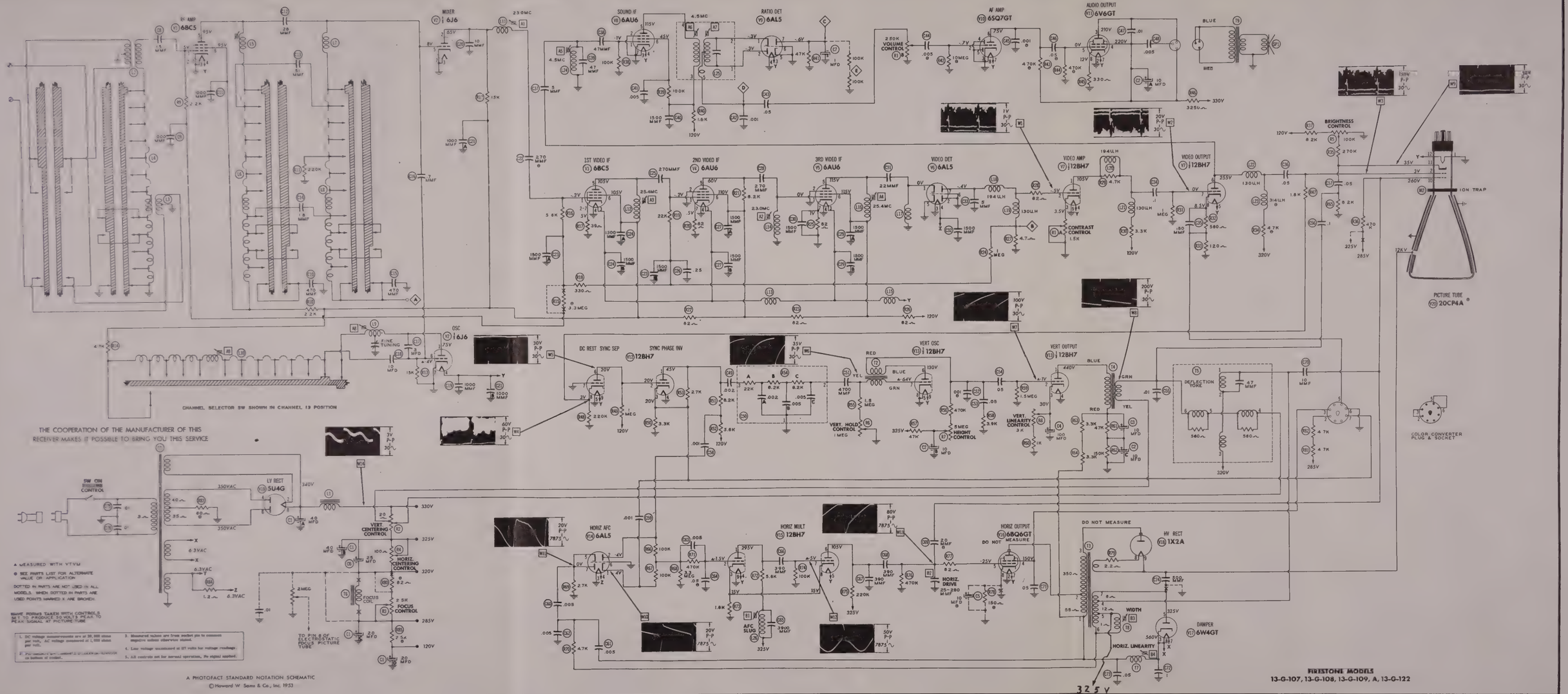
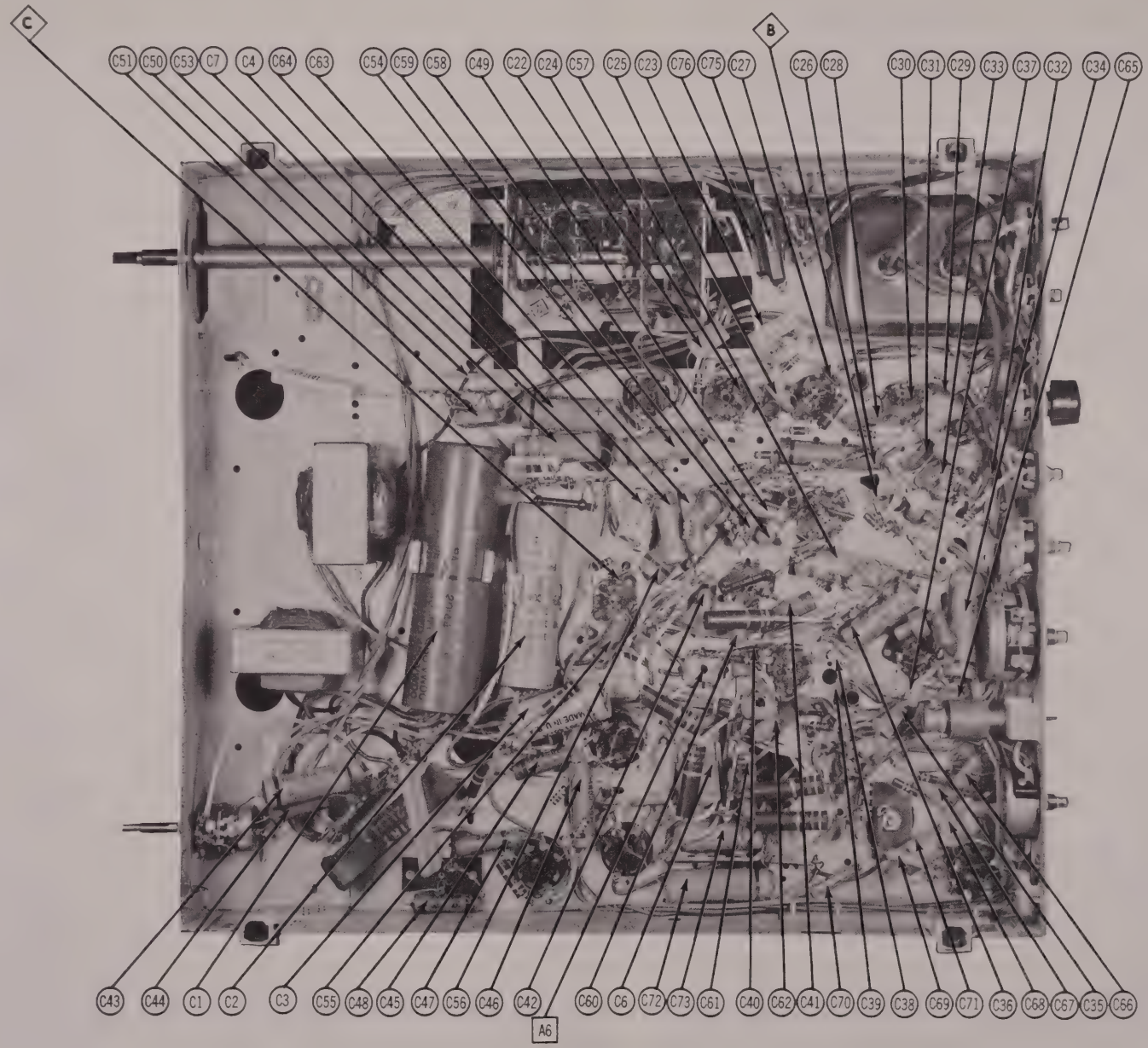

RF AMP V1 6BC5
MIXER V2 6J6
OSC V3 6J6
SOUND IF V8 6AU6
RATIO DET V5 6AL5
AF AMP V10 6SQ7GT
AUDIO OUTPUT V11 6V6GT
1ST VIDEO IF V3 6BC5
2ND VIDEO IF V4 6AU6
3RD VIDEO IF V6 6AU6
VIDEO DET V6 6AL5
VIDEO AMP V7 12BH7
VIDEO OUTPUT V7 12BH7
DC REST SYNC SEP V12 12BH7
SYNC PHASE INV V12 12BH7
VERT OSC V13 12BH7
VERT OUTPUT V13 12BH7
HORIZ AFC V14 6AL5
HORIZ MULT V15 12BH7
HORIZ OUTPUT V16 6BQ6GT
LV RECT V19 5U4G
HV RECT V18 1X2A
DAMPER V17 6W4GT
PICTURE TUBE V20 20CP4A
ION TRAP
BRIGHTNESS CONTROL
CONTRAST CONTROL 1.5K
VOLUME CONTROL 250K
FINE TUNING
CHANNEL SELECTOR SW SHOWN IN CHANNEL 13 POSITION
VERT. HOLD CONTROL 1 MEG
VERT. HEIGHT CONTROL
VERT. LINEARITY CONTROL 3K
VERT. CENTERING CONTROL
HORIZ. CENTERING CONTROL
FOCUS COIL
FOCUS CONTROL 3.5K
HORIZ. DRIVE 25-280 MMF
AFC SLUG
WIDTH
HORIZ. LINEARITY
DEFLECTION YOKE
COLOR CONVERTER PLUG & SOCKET
DO NOT MEASURE
THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE
A MEASURED WITH VTVM
SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
DOTTED IN PARTS ARE NOT USED IN ALL MODELS. WHEN DOTTED IN PARTS ARE USED POINTS MARKED X ARE BROKEN.
WAVE FORMS TAKEN WITH CONTROLS SET TO PRODUCE 30 VOLTS PEAK TO PEAK SIGNAL AT PICTURE TUBE
1. DC voltage measurements are at 20,000 ohms per volt, AC voltage measured at 1,000 ohms per volt.
2. For resistance measurements in ohms, K=1,000 and MEG=1,000,000 ohms.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line voltage measured at 117 volts for voltage readings.
5. All controls set for normal operation, no signal applied.
A PHOTOFACT STANDARD NOTATION SCHEMATIC
© Howard W. Sams & Co., Inc. 1953
FIRESTONE MODELS
13-G-107, 13-G-108, 13-G-109, A, 13-G-122

L. F.
3924 [illegible] ST.
DENVER, COLORADO

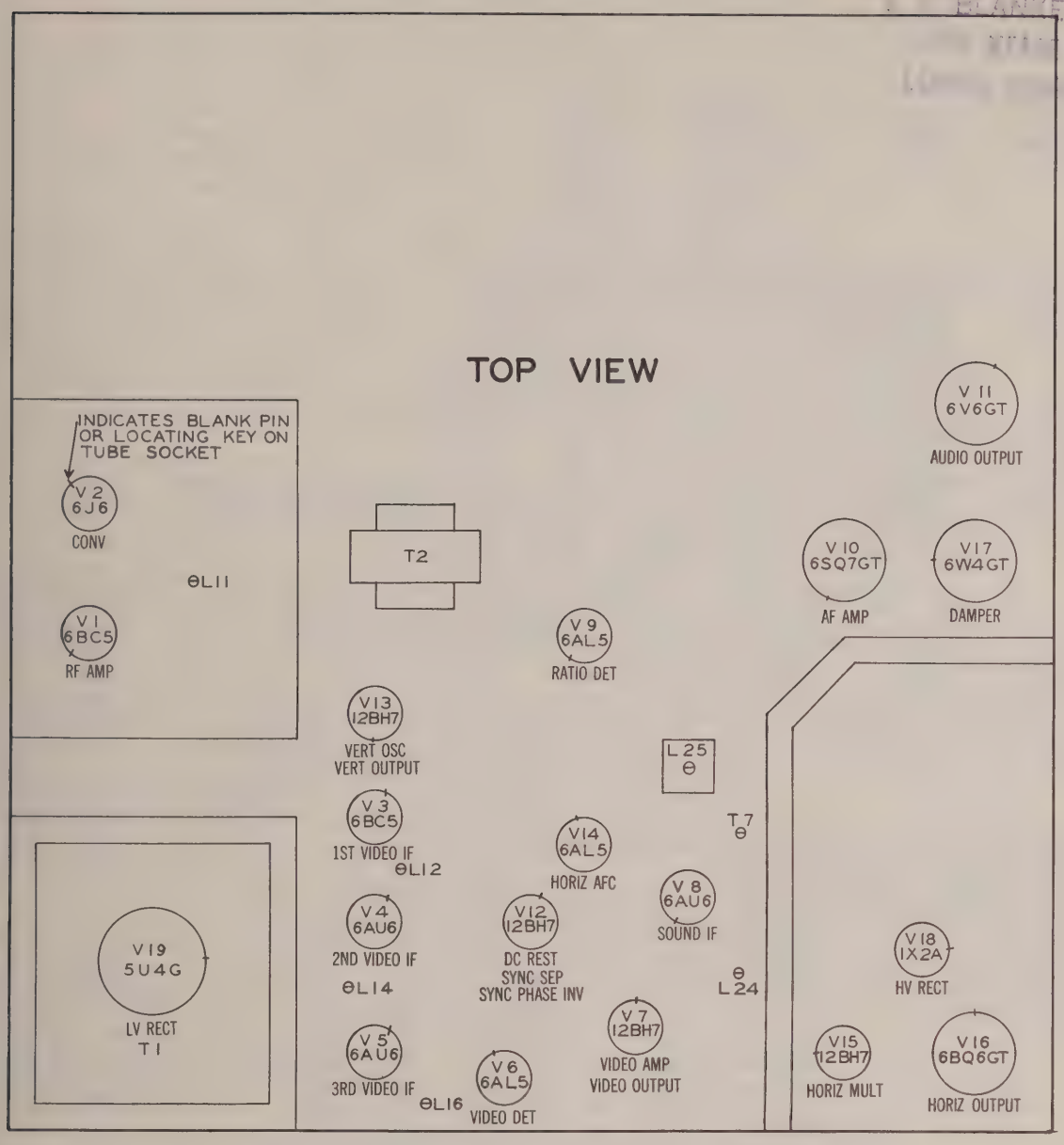
CHASSIS TOP VIEW



CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION

TUBE PLACEMENT CHART

PROPERTY OF



TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No raster, no sound - V19

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster, - V2, V3, V4, V5, V6, V7
No pic, no sound,has snow - V1, V2, V3
No pic, has sound, has raster - V7 , V20
Has pic, no sound - V8, V9, V10, V11

SYNC FAILURE
No vert. sync - V12, V13
No horiz. sync - V12, V14, V15
No vert. or horiz. sync - V12

SWEEP FAILURE
No raster, has sound - V15, V16, V17, V18, V20
No vertical deflection - V13
Poor vert. linearity or foldover - V13
Poor horiz. linearity or foldover - V15, V16, V17
Narrow Picture - V15, V16, V17, V18, V19
Vert. Off Freq. - V12, V13
Horiz. Off Freq. - V12, V14, V15

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The high voltage lead should be securely taped and kept away from the chassis. Do not remove the horizontal multivibrator tube to disable the high voltage.

VIDEO IF ALIGNMENT

Connect the negative lead of a 3 volt battery to the AGC terminal on the tuner. Connect the positive lead to chassis.
Set contrast control at 1/4 turn from counter clockwise position.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	.001MFD	High side to point ◇A◇ Low side to chassis.	23MC	Any non-interfering channel.	DC probe to point ◇B◇ Common to chassis.	A1, A2	Adjust for maximum deflection. Attenuate generator to maintain 2.5 volts at VTVM.
2.	"	"	25.4MC	"	"	A3, A4	"

OVERALL VIDEO IF RESPONSE CHECK

Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
3.	.001MFD	High side to point ◇A◇ Low side to chassis.	24MC (10MC Swp)	21.20MC 25.70MC	Any non-interfering channel.	Vert. amp. to point ◇B◇ Low side to chassis.		Check for response similar to Fig. 1. If necessary retouch A1 thru A4 for desired response.

SOUND IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

Connect two matched 100KΩ (±1%) resistors in series from point ◇C◇ to chassis. The junction of these two resistors is alignment point ◇E◇ as shown on the schematic.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
4.	.001MFD	High side to point ◇B◇ Low side to chassis.	4.5MC (Unmod)	Any non-interfering channel.	DC probe to point ◇C◇ Common to chassis.	A5, A6	Adjust for maximum deflection.
5.	"	"	"	"	DC probe to point ◇D◇ Common to point ◇E◇	A7	Adjust for a zero reading. A positive and negative reading will be obtained on either side of the correct setting.

SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60~ modulation and 450KC sweep. Use 120~ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
4.	.001MFD	High side to point ◇B◇ Low side to chassis.	4.5MC (450KC Swp)	4.5MC	Any non-interfering channel.	Vert. amp. to point ◇C◇ Low side to chassis.	A5, A6	Disconnect stabilizer capacitor C7. Adjust for curve of maximum amplitude and symmetry as in Fig. 2.
5.	"	"	"	"	"	Vert. amp to point ◇D◇ Low side to chassis.	A7	Reconnect capacitor C7. Adjust so that 4.5MC occurs at center of crossover lines as in Fig. 3. SLIGHTLY retouch A6 for maximum amplitude and straightness of crossover lines

OSCILLATOR ALIGNMENT

Connect bias battery as under Video IF Alignment.
Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Set the fine tuning control to the mid-position of its range.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
6.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	213MC (10MC Swp)	211.25MC 215.75MC	13	Vert. amp to point ◇B◇ Low side to chassis.	A8	Adjust to place Video marker at 50% on high frequency side of response curve.
7.	"	"	207MC (10MC Swp)	205.25MC 209.75MC	12	"		Check all high band channels for correct marker placement. IF necessary make slight compromise adjustment of A8 for best marker marker placement on all channels.
			201MC (10MC Swp)	199.25MC 203.75MC	11			
			195MC (10MC Swp)	193.25MC 197.75MC	10			
			189MC (10MC Swp)	187.25MC 191.75MC	9			
			183MC (10MC Swp)	181.25MC 185.75MC	8			
			177MC (10MC Swp)	175.25MC 179.75MC	7			
8.	"	"	85MC (10MC Swp)	83.25MC 87.75MC	6		A9	Adjust to place video marker at 50% on high frequency side of response curve.
9.	"	"	79MC (10MC Swp)	77.25MC 81.75MC	5	"		Check low band channel for correct marker placement. If necessary make slight compromise adjustment of A9 for best marker placement on all channels.
			69MC (10MC Swp)	67.25MC 71.75MC	4			
			63MC (10MC Swp)	61.25MC 65.75MC	3			
			57MC (10MC Swp)	55.25MC 59.75MC	2			

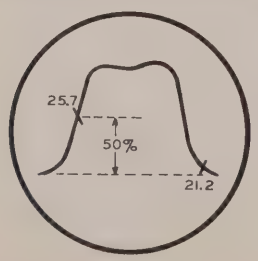


FIG. 1

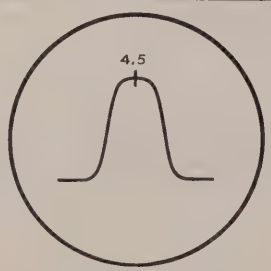


FIG. 2

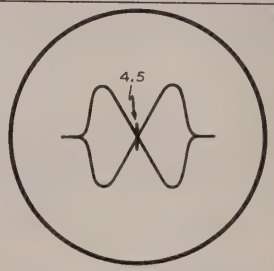


FIG. 3

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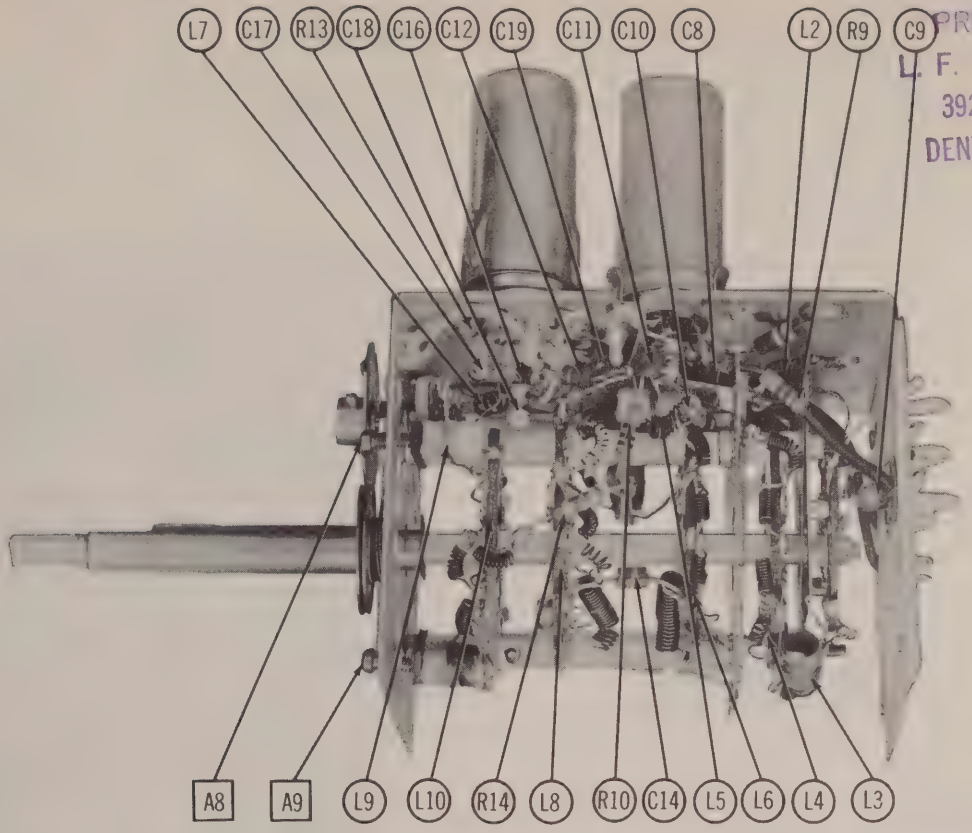
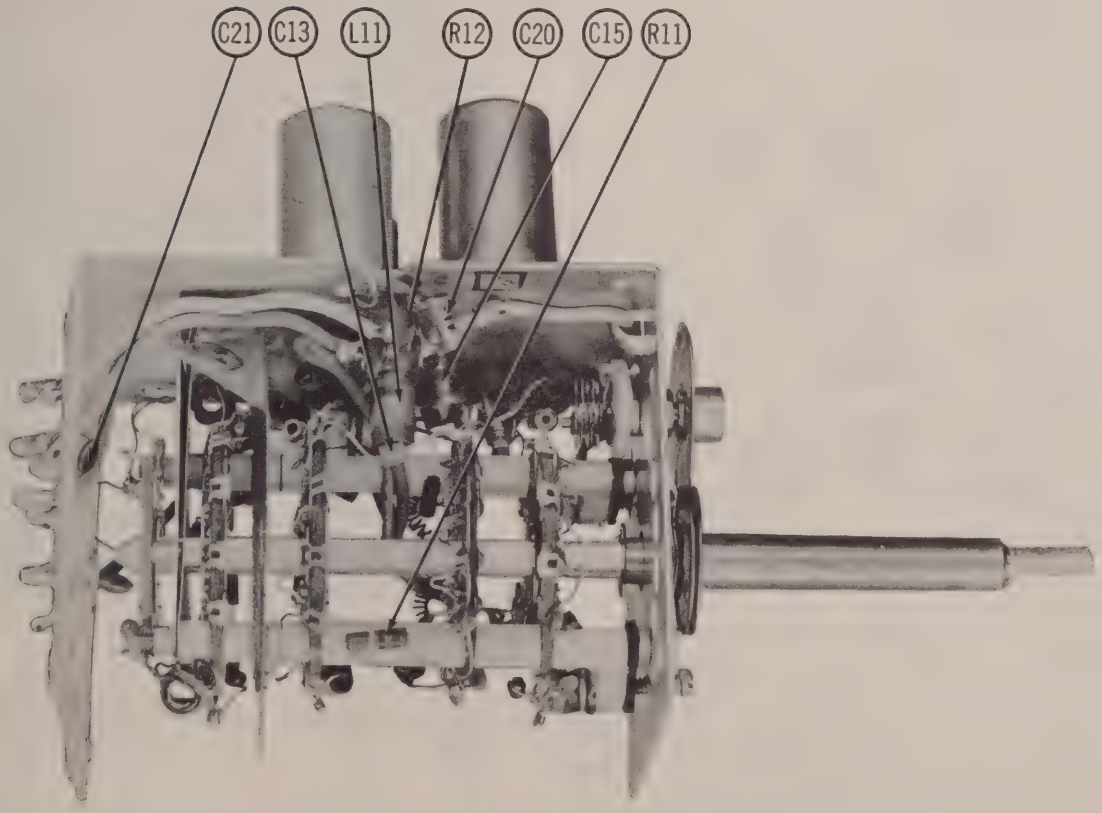


RF TUNER-RIGHT SIDE

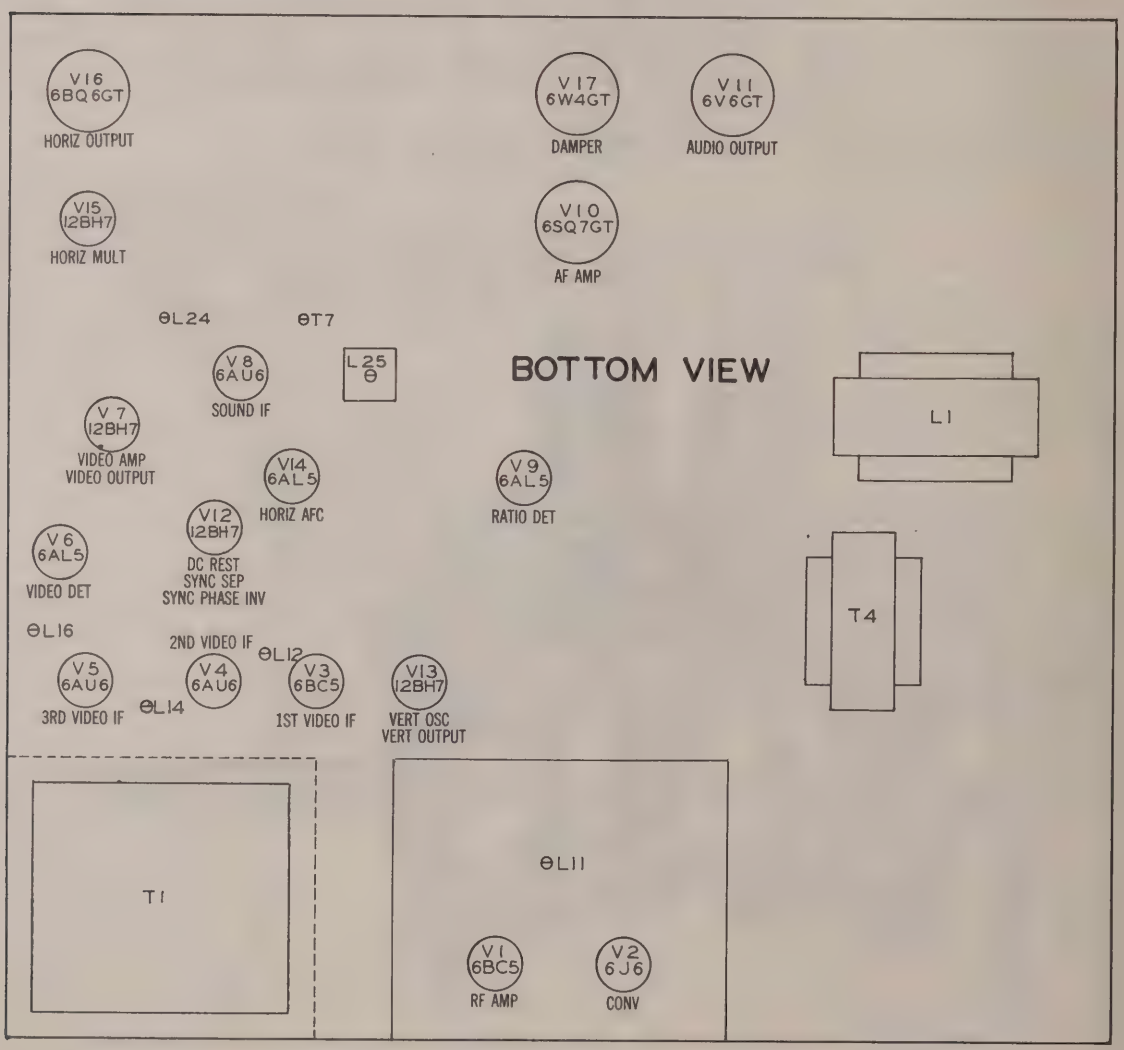


RF TUNER-LEFT SIDE

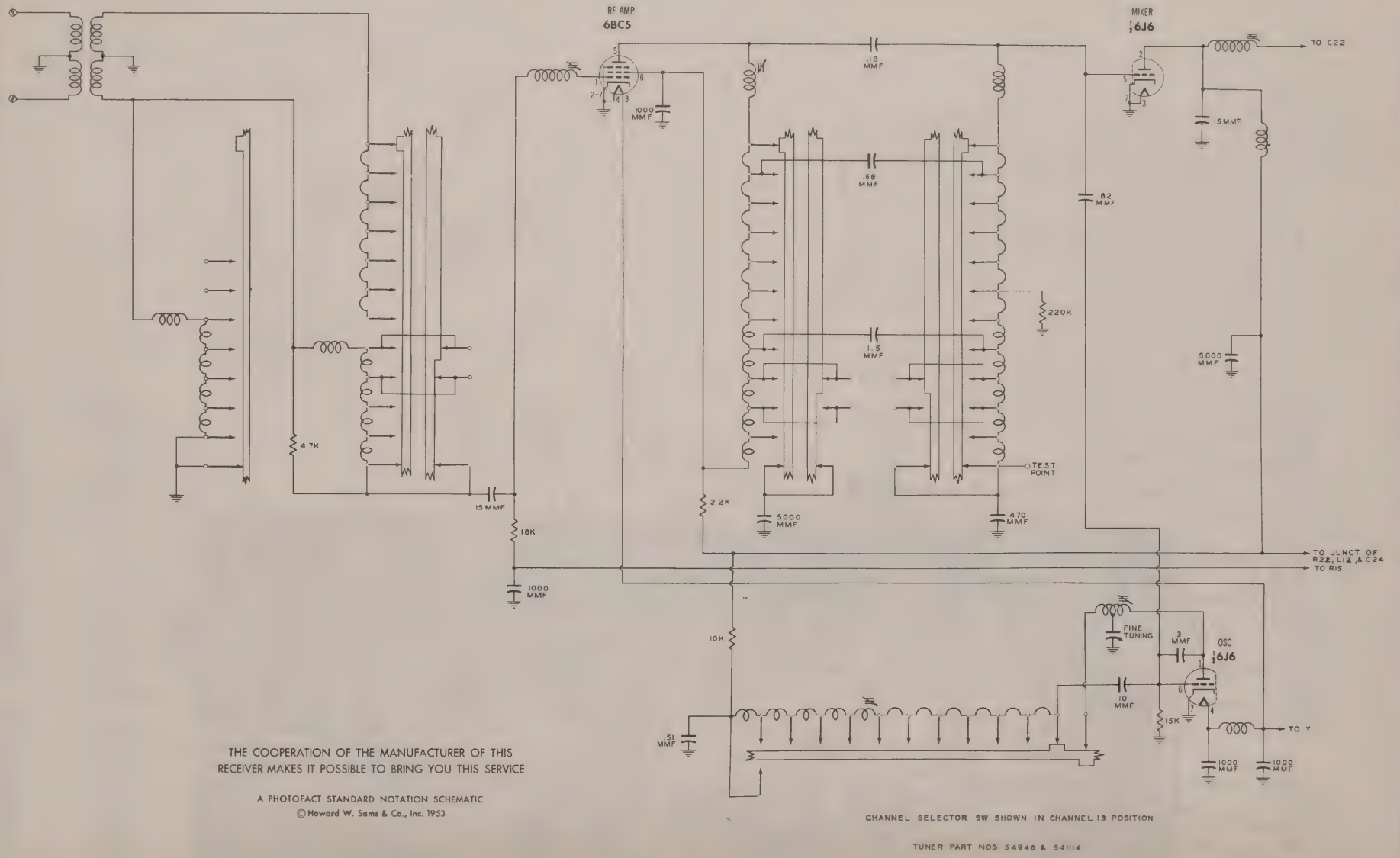
RESISTANCE MEASUREMENTS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6BC5	4.3Meg	0Ω	0Ω	.1Ω	†5.5KΩ	†5.5KΩ	0Ω		
V 2	6J6	†10KΩ	†20KΩ	0Ω	.1Ω	220KΩ	15KΩ	0Ω		
V 3	6BC5	1 Meg	39Ω	.4Ω	0Ω	†3.4KΩ	†3.4KΩ	39Ω		
V 4	6AU6	1 Meg	0Ω	.4Ω	0Ω	†11.5KΩ	†3.3KΩ	82Ω		
V 5	6AU6	.2Ω	0Ω	.2Ω	0Ω	†3.2KΩ	†3.2KΩ	82Ω		
V 6	6AL5	2.8Ω	0Ω	0Ω	.1Ω	0Ω	0Ω	4.7KΩ		
V 7	12BH7	†6.4KΩ	4.8KΩ	800Ω	.1Ω	.1Ω	†4.8KΩ	1 Meg	680Ω	0Ω
V 8	6AU6	100KΩ	0Ω	0Ω	.1Ω	†4.9KΩ	†100KΩ	0Ω		
V 9	6AL5	INF	INF	.8Ω	0Ω	0Ω	0Ω	47KΩ		
V 10	6SQ7GT	0Ω	10 Meg	0Ω	0Ω	0Ω	†470KΩ	.1Ω	0Ω	
V 11	6V6GT	INF	0Ω	†3.6KΩ	†3.3KΩ	470KΩ	INF	.1Ω	330Ω	
V 12	12BH7	†12KΩ	†1 Meg	3.3KΩ	0Ω	0Ω	†1 Meg	0Ω	220KΩ	.1Ω
V 13	12BH7	#7.9KΩ	1.5Meg	2.9KΩ	0Ω	0Ω	†1.1Meg	2.3Meg	0Ω	.1Ω
V 14	6AL5	3.4Meg	3.4Meg	0Ω	.8Ω	2.7KΩ	0Ω	2.7KΩ		
V 15	12BH7	†5.7KΩ	3.8Meg	1.8KΩ	.1Ω	.1Ω	†220KΩ	100KΩ	1.8KΩ	0Ω
V 16	6BQ6GT	470KΩ	0Ω	INF	†10KΩ	470KΩ	INF	.1Ω	0Ω	Top Cap #82Ω
V 17	6W4GT	†85Ω	INF	100KΩ	INF	†100Ω	INF	#.2Ω	#0Ω	
V 18	1X2A	PINS 1 - 9 HAVE INF RESISTANCE								Top Cap #432Ω
V 19	5U4G	INF	30KΩ	INF	¶40Ω	INF	¶35Ω	INF	30KΩ	
V 20	20CP4	0Ω	220KΩ	Pin 10 †470KΩ	Pin 11 330KΩ	Pin 12 .1Ω				

† MEASURED FROM PIN 8 OF V19
# MEASURED FROM PIN 3 OF V17
¶ MEASURED FROM CENTER TAP OF T1



TUBE PLACEMENT CHART



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CHANNEL SELECTOR SW SHOWN IN CHANNEL 13 POSITION

TUNER PART NOS 54946 & 54114

ALTERNATE TUNER SCHEMATIC TT5AL-SWITCH TYPE

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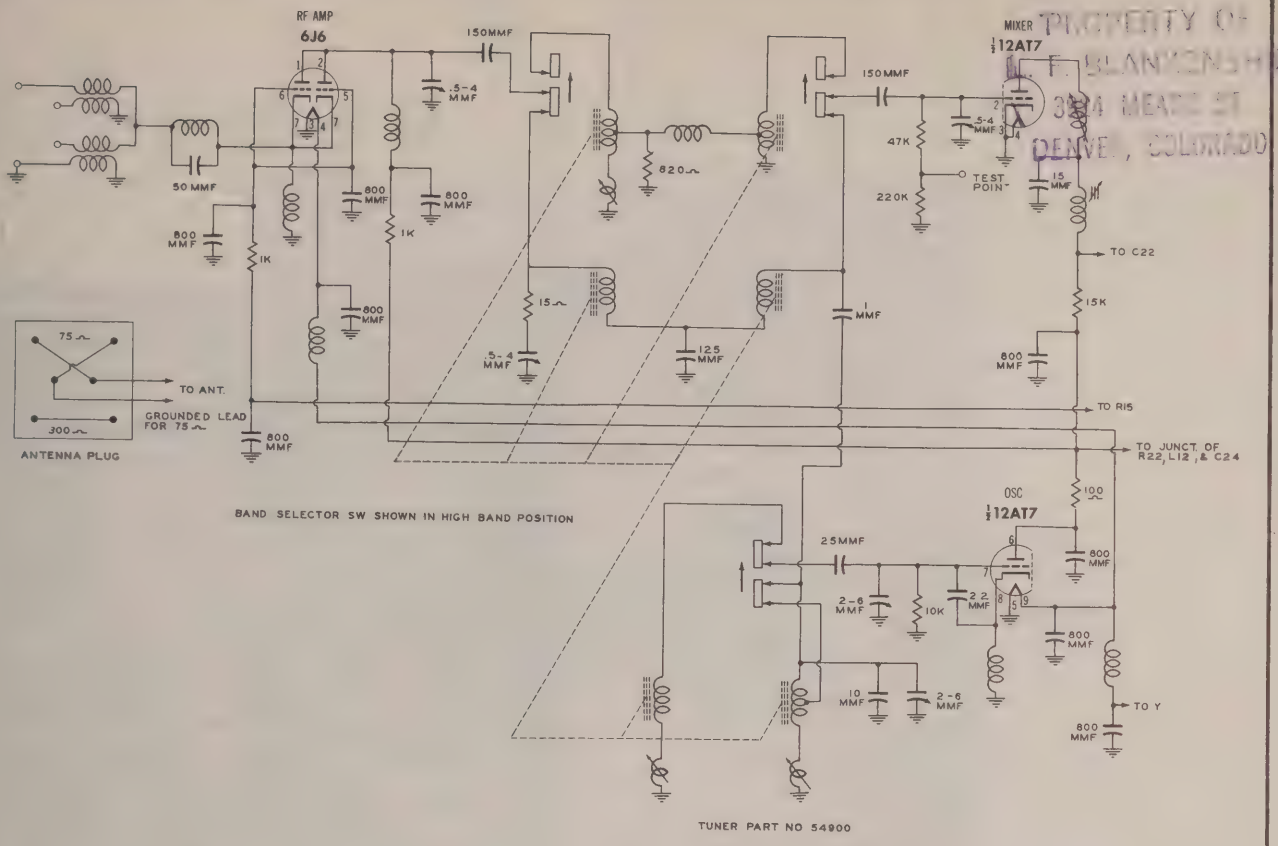
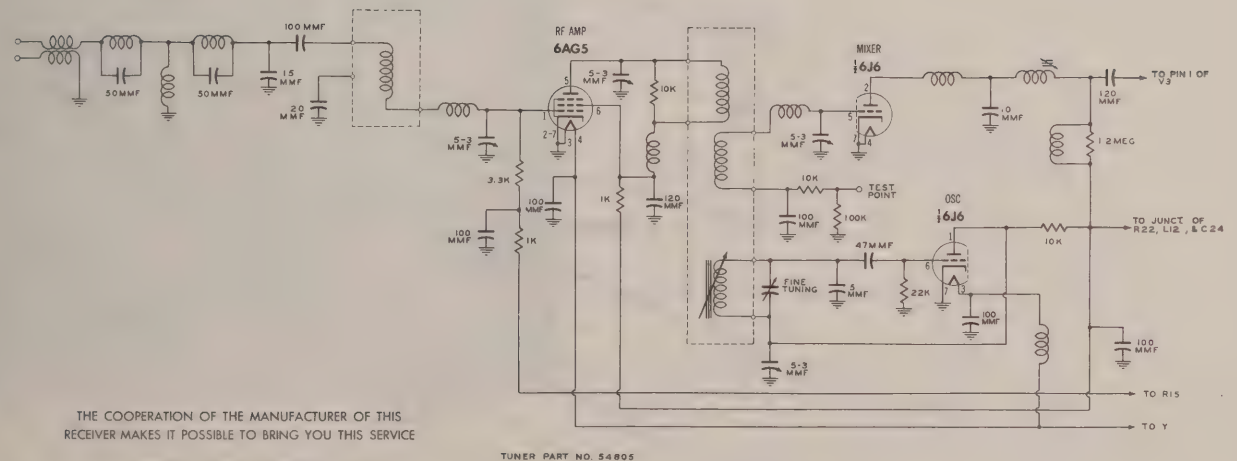
I. F. CLANTON SHOP
3884 MEADE ST
DENVER, COLORADO



BAND SELECTOR SW SHOWN IN HIGH BAND POSITION

TUNER PART NO 54900

ALTERNATE TUNER SCHEMATIC - CONTINUOUS TYPE



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TUNER PART NO. 54805

ALTERNATE TUNER SCHEMATIC - TURRET TYPE

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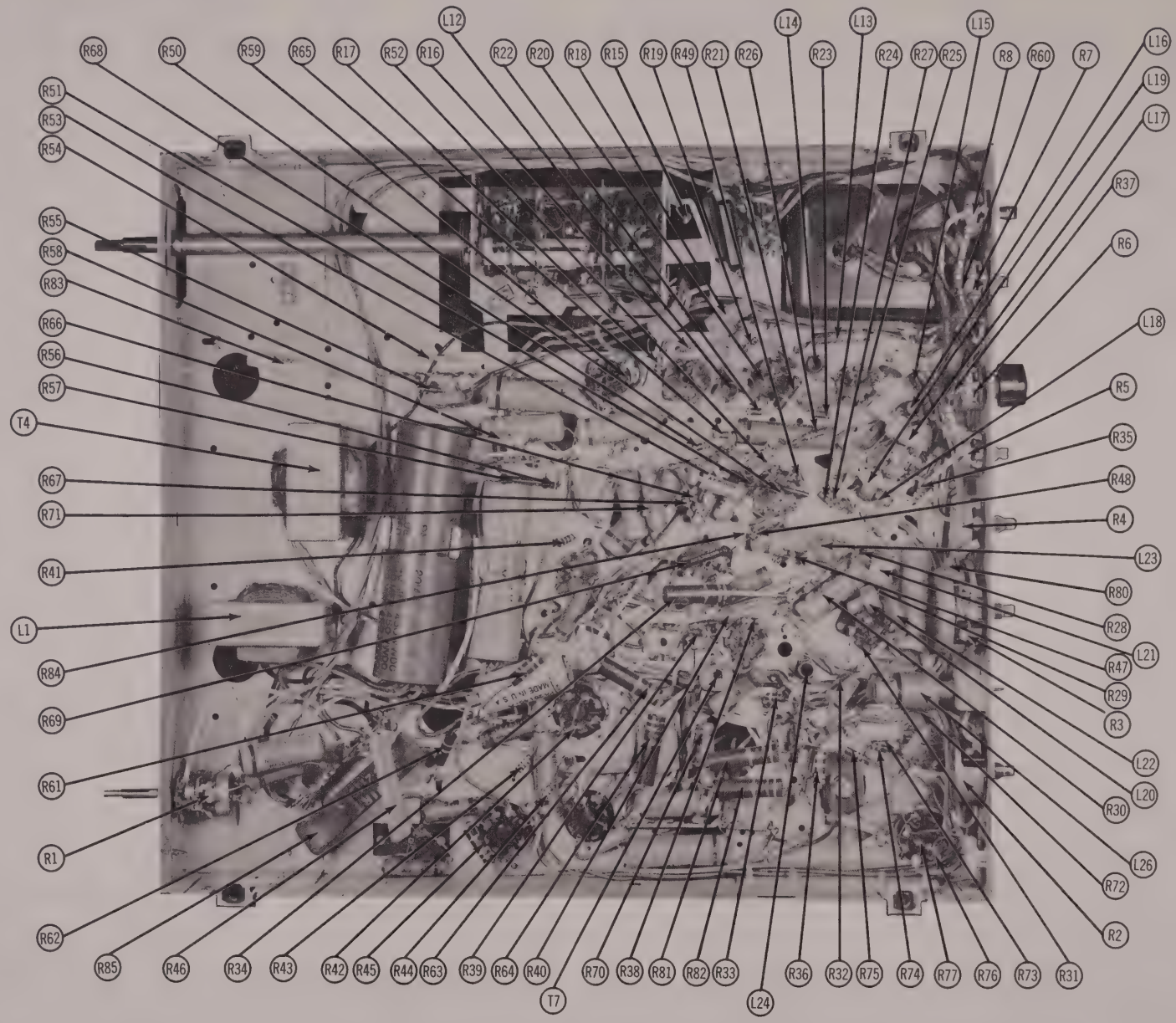
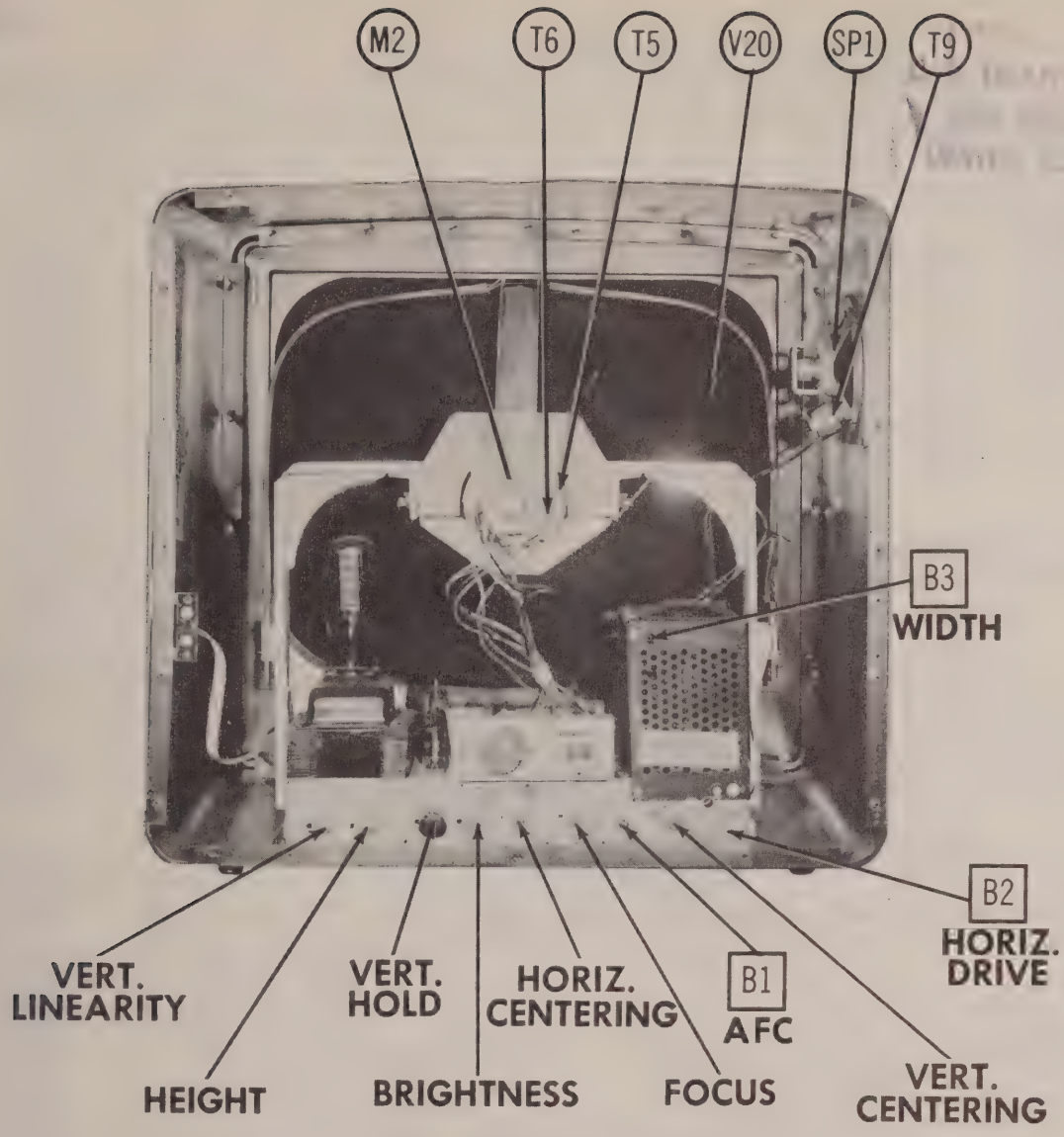


CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION



CABINET-REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably a test pattern.

Adjust the AFC slug (B1) for horizontal synchronization.

Adjust the horizontal drive trimmer (B2) counter clockwise as far as possible without the presence of a vertical white line or compression of the center of the picture.

Adjust the width slug (B3) for a picture slightly wider than necessary to fill the picture mask horizontally.

Adjust the horizontal linearity slug (B4) for a picture that is symmetrical from left to right.

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: FIRESTONE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RTMA BASE TYPE	NOTES
V1	RF Amplifier	6BC5	6BC5	7BD	
V2	Converter	6J6	6J6	7BF	
V3	1st Video	6BC5	6BC5	7BD	
V4	2nd Video IF Amp.	6AU6	6AU6	7BK	
V5	3rd Video IF Amp.	6AU6	6AU6	7BK	
V6	Video Detector	6AL5	6AL5	6BT	
V7	Video Amplifier - Video Output	12BH7	12BH7	9A	
V8	Sound IF Amp.	6AU6	6AU6	7BK	
V9	Ratio Detector	6AL5	6AL5	6BT	
V10	AF Amplifier	6SQ7GT	6SQ7GT	8Q	
V11	Audio Output	6V6GT	6V6GT	7S	
V12	DC Restorer - Sync Separator - Sync Phase Inv.	12BH7	12BH7	9A	
V13	Vert. Oscillator - Vert. Output	12BH7	12BH7	9A	
V14	Horiz. AFC	6AL5	6AL5	6BT	
V15	Horiz. Mult.	12BH7	12BH7	9A	
V16	Horiz. Output	6BQ6GT	6BQ6GT	6AM	
V17	Damper	6W4GT	6W4GT	4CG	
V18	HV Rectifier	1X2A	1X2A	9Y	
V19	LV Rectifier	5U4G	5U4G	5T	

CATHODE-RAY TUBE

ITEM No.	REPLACEMENT DATA: FIRESTONE PART No.	REPLACEMENT DATA: SYLVANIA PART No.	RTMA BASE TYPE	NOTES
V20A	20CP4	20CP4	12D	① Used on chassis 105-2-700144.
		20CP4A ⑤	12D	② Used on chassis 105-2-700150.
		20DP4 ⑥	12D	③ Used on chassis 105-2-700100.
		20DP4A ⑤ ⑥	12D	④ Used on chassis 105-2-700104.
		20LP4 ⑤ ⑥	12C	⑤ Circuit changes necessary.
B	20HP4A ①	20HP4 ⑤ ⑥	12C	⑥ 3/8" longer.
		20HP4A ⑤ ⑥	12C	
		20MP4 ⑤ ⑥	12C	
C	21EP4 ②		12D	
D	17BP4A ③		12D	
E	17HP4 ③		12C	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: Firestone PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C1A	40	450	A20144	PRS450, 40-40		BO45		FP447	TVA-2740	Red
B	40	450				BRD2245			TVA-2730	Blue
C	20	450		PRS450, 20-20						Orange
D	20	450								Green
C2A	10	450	A20135	PRS450/10-10		UPU145		4N727	TVA-2722	Red
B	10	450		PRS450/10					TVA-1705	Yellow
C	10	450								Blue
C3	10	250	A20145	PRS250/12		BR125A		TC52	TVA-1504	
C4	100	25	A20130	PRS25/100		BR125A		TC2501	TVA-1207	
C5	10	25	A20137	PRS25/10		BR102A		TC22	TVA-1204	Note 1
C6	25	12	A20147	PRS25/25		BR252A		TC26	TVA-1205	
C7	1	50	A20138	PRS150/4		BBR-1-50T		TC31	TVA-1300	
C8	15		A556-203	SI15	D6-150		GP1K-150	UC-5415	5GA-Q15	
C9	1000		A19132	BPD-001	DD-102	TM5D1	801-001	DC-521	5HK-D1	
C10	470		A19139	SI470	D6-471	TM5T5	GP2K-471	UC-5347	5GA-T47	
C11	1000		A19132	BPD-001	DD-102	TM5D1	801-001	DC-521	5HK-D1	
C12	.28		A19151		TCZ-.5		NP0K-R50			
C13	.51		A19152				NP0K-1R0			
C14	3.8		A19153				NP0K-3R8			
C15	470		A19139	SI470	D6-471	TM5T5	GP2K-471	UC-5347	5GA-T47	
C16	.7				TCZ-.68		NP0K-R68			
C17	5		A19154							
C18	10		A556-201-2	SI10N750	TCN-10		N750K-100	NT-541	5TCU-Q1	
C19	1000		A19132	BPD-001	DD-102	TM5D1	801-001	DC-521	5HK-D1	
C20	10		A556-201-2	SI10N750	TCN-10		N750K-100	NT-541	5TCU-Q1	
C21A	1000			BPD-2X001	DD-2-102	TM5DD1	812-001	DCD-521	5HK-2D1	
B	1000									
C22	270	500	A190-133	SI270	D6-271		GP2K-271	UC-5327	5GA-T27	Note 2
C23A	2500		A19147	BPD-2X0015	DD-2-152	TM5DD15	812-0015	DCD-5215	5HK-2D15	
B	2500									
C24A	2500		A19147	BPD-2X0015	DD-2-152	TM5DD15	812-0015	DCD-5215	5HK-2D15	
B	2500									
C25	270	500	A190-133	SI270	D6-271		GP2K-271	UC-5327	5GA-T27	
C26	.25	200	A194-167	P488-25		PTE4P25		PT4025	4TM-P25	
C27A	1500		A19147	BPD-2X0015	DD-2-152	TM5DD15	812-0015	DCD-5215	5HK-2D15	
B	1500									
C28	270	500	A190-133	SI270	D6-271		GP2K-271	UC-5327	5GA-T27	
C29A	1500		A19147	BPD-2X0015	DD-2-152	TM5DD15	812-0015	DCD-5215	5HK-2D15	
B	1500									
C30	1500		A19148	BPD-0015	DD-152	TM5D15	801-0015	DC-5215	5HK-D15	
C31	22	500	A190-107	SI22	D6-220	SR5Q25	GP1K-220	UC-5422	5GA-Q22	
C32	1500		A190-148	BPD-0015	DD-152	TM5D15	801-0015	DC-5215	5HK-D15	
C33	5		A555-100	SI5NP0	TCZ-4.7		NP0K-050	ZT-555	5TCCB-V47	
C34	.1	600	A194-162	P688-1	DF-104	PTE6P1		PT601	6TM-P1	
C35	180	500	A190-129	SI180	D6-181		GP2K-181	UC-5318	5GA-T18	
C36	.05	600	A194-160	P688-05	DF-503	PTE6S5		PT615	6TM-S5	
C37	5		A55-100	SI5	TCZ-4.7	5W5V5	GP1K-050	UC-555	5GA-V5	
C38	47		A555-113-2	SI47	D6-470	TM5Q5	GP1K-470	UC-5447	5GA-Q47	
C39	47	500		1469-00005		SR5Q5		MCB225	MS-45	
C40	1500		A19148	BPD-0015	DD-152	TM5D15	801-0015	DC-5215	5HK-D15	
C41	.005	600	A194-151	P688-005	D6-502	PTE6D5	GP2-333-502	PT625	6TM-D5	
C42	.001	600	A194-145	P688-001	D6-102	PTE6D1	GP2L-102	PT621	6TM-D1	
C43	.05	600	A194-160	P688-05	DF-503	PTE6S5		PT615	6TM-S5	

CAPACITORS (CONT.)

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: FIRESTONE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C44	.005	600	A194-151	P688-005	D6-502	PTE6D5	GP2-333-502	PT625	6TM-D5	Note 7
C45	.001	600	A194-145	P688-001	D6-102	PTE6D1	GP2L-102	PT621	6TM-D1	Note 7
C46	.05	600	A194-160	P688-05	DF-503	PTE6S5		PT615	6TM-S5	Note 7
C47	.01	600	A194-155	P688-01	D6-103	PTE6S1	GP2-333-103	PT611	6TM-S1	
C48	.005	600	A194-151	P688-005	D6-502	PTE6D5	GP2-333-502	PT615	6TM-D5	
C49	.002	600	A194-146	P688-002	D6-202	PTE6D2	GP2-333-202	PT622	6TM-D2	
C50A	.002			P688-002		PTE6D2		PT622		
B	.005		*PB20150	P688-005	*PC-100	PTE6D5	*1405-01	PT625	*101C.1	
C	.005			P688-005		PTE6D5		PT625		
C51	4700	500	A192-163	1464-005		IDR5D5		MCB465	MS-25	
C52	.001	800	A194-145	P688-001	D6-102	PTE6D1	GP2L-102	PT621	6TM-D1	Note 3
C53	.05	800	A194-160	P688-05	DF-503	PTE6S5		PT615	6TM-S5	
C54	.05	800	A194-160	P688-05	DF-503	PTE6S5		PT615	6TM-S5	
C55	.01	600	A194-155	P688-01	D6-103	PTE6S1	GP2-333-103	PT611	6TM-S1	
C56	.1	600	A194-162	P688-1	DF-104	PTE6P1		PT601	6TM-P1	
C57	.05	600	A194-160	P688-05	DF-503	PTE6S5		PT615	6TM-S5	
C58	.001	600	A194-145	P688-001	D6-102	PTE6D1	GP2L-102	PT621	6TM-D1	
C59	.001	600	A194-145	P688-001	D6-102	PTE6D1	GP2L-102	PT621	6TM-D1	
C60	.005	600	A194-151	P688-005	D6-502	PTE6D5	GP2-333-502	PT625	6TM-D5	
C61	.005	800	A194-151	P688-005	D6-502	PTE6D5	GP2-333-502	PT625	6TM-D5	
C62	.005	600	A194-151	P688-005	D6-502	PTE6D5	GP2-333-502	PT625	6TM-D5	
C63	.005	800	A194-151	P688-005	D6-502	PTE6D5	GP2-333-502	PT625	6TM-D5	
C64	.05	200		P288-05	DF-503	PT285		PT415	2TM-S5	Note 4
C65	3900	500	A195-261	1464-004		IDR5D4		MCB463	MS-24	
C66	390	500	A190-137	1469-0004		5R5T4		MCB243	MS-34	
C67	390	500	A190-137	1469-0004		5R5T4		MCB243	MS-34	
C68	390	500	A190-137	1469-0004		5R5T4		MCB243	MS-34	Note 5
C69	20	1500	A19172							
C70	10	2500	A19146					MCP410	60GAB-Q1	
C71	.05	600	A194-160	P688-05	DF-503	PTE6S5		PT615	6TM-S5	
C72	.1	600	A194-162	P688-1		PTE6P1		PT601	6TM-P1	
C73	.05	600	A194-160	P688-05		PTE6S5		PT615	6TM-S5	
C74	500	20000	A1998-3	HV20C	TV3-501	MM-C20TS	413-501		20DK-T5	Note 6
C75	.01	600	A19106	6892GGXY-01		PJ6S1		PT611	6TM-S1	
C76	.01	600	A19106	6892GGXY-01		PJ6S1		PT611	6TM-S1	

Note 1. Not used in all Models.
Note 2. On Models using turret type tuner this item is part of tuner.
Note 3. Used only with Vert. Osc. Trans. part #PB10125.
Note 4. Some Models use .1MFD in this application (Part #A194-66)
Note 5. Chassis 105-2-700-100 and 105-2-700-104 use 270 MMF in this application (Part #A190-133)
Note 6. Models having 17" picture tubes use Part #A1998-2 in this application.
Note 7. Items C44, C45, C46, R42, R43, R44 may be combined in one unit (Part #PB20152).
* Items C50A, C50B, C50C, R54A, R54B, R54C are combined in one unit.
Some Models may use separate items, C50A (A194-151) 005, C50B (A194-155) 01, C50C (A194-151) 005.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: FIRESTONE PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	15000	½	A24124	QJ-231*	RTV-305	BBB-684-8	UF152L	Contrast-Panel
B	250KΩ	½					UR254A †	Volume-Rear
C	Switch						US-26	Attach to R1B
R2	20Ω	2	A24118	W20X10	RTV-98	SVT-901	R20CT	Vert. Centering-Wire Wound
R3A	2500Ω	4	A24113	4WS-2500	A10-2500	SVP-988	TVF143	Focus-Wire Wound-Note
B	Shaft		Not Req.	Not Req.	FKS-1/4	Not Req.	Not Req.	Attach to R3A
R4A	100Ω	2	A24116	W-100	A43-100	VK-121	R100L	Horiz. Centering-Wire Wound
B	Shaft		Not Req.	Not Req.	FKS-1/4	Not Req.	Not Req.	Attach to R4A
R5A	100KΩ	½	A24110	QJ1-128	AG-69-8	AB-40	SU-61	Brightness
B	Shaft		Not Req.	Not Req.	FKS-1/4	AK-1	Not Req.	Attach to R5A
R6A	1 Meg	½	A24112	QJ1-137	AG-61-8	AB-69	SU-54	Vert. Hold
B	Shaft		Not Req.	Not Req.	FKS-1/4	AK-1	Not Req.	Attach to R6A
R7A	5 Meg	½	A24111	QJ1-141	AG-85-8	AB-87	SU-67	Height
B	Shaft		Not Req.	Not Req.	FKS-1/4	AK-1	Not Req.	Attach to R7A
R8A	3000Ω	½	A24114	WK-3000	A43-3000	AB-8	U-8	Vert. Linearity
B	Shaft		Not Req.	Not Req.	FKS-1/4	AK-1	Not Req.	Attach to R8A

* CONCENTRIKIT EQUIVALENT-KIT K-2, BASE ELEMENTS & SHAFTS B17-110 & P1-106 (Panel)
B13-130 & R1-126 (Rear) & SWITCH 76-1.
† UNIVERSAL REPLACEMENT (MALLORY EXACT DUPLICATE PART NO. UE110S).
Note. Chassis No. 105-2-700-104 uses alternate control (Part No. A24112).

RESISTORS

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: FIRESTONE PART No.	IRC PART No.	NOTES
R9	2200Ω	½	A231-1157	BTS-2200	
R10	2200Ω	½	A231-1157	BTS-2200	
R11	220KΩ	½	A231-2305	BTS-220K	
R12	15KΩ	½	A231-2277	BTS-15K	
R13	15KΩ	½	A231-2277	BTS-15K	
R14	4700Ω	½	A231-1165	BTS-4700	
R15	3.3Meg	½	A231-1233	BTS-3.3Meg	Note 4
R16	5600Ω	½	A231-1167	BTS-5600	
R17	39Ω	½	A231-1115		
R18	330Ω	½	A231-1137	BTS-330	
R19	22KΩ	½	A231-1161		
R20	82Ω	½	A231-1123	BTS-82	
R21	8200Ω	1	A232-1171		
R22	82Ω	½	A231-1123	BTS-82	
R23	82Ω	½	A231-1123	BTS-82	
R24	1 Meg	½	A231-1221	BTS-1 Meg	
R25	82Ω	½	A231-1123	BTS-82	
R26	82Ω	½	A231-1123	BTS-82	
R27	4700Ω	½	A231-1165	BTS-4700	
R28	82Ω	½	A231-1123		
R29	4700Ω	½	A231-1165	BTS-4700	
R30	3300Ω	1	A232-1161	BTA-3300	
R31	1 Meg	½	A231-1221	BTS-1 Meg	
R32	560Ω	½	A231-1143	BTS-560	
R33	120Ω	½	A231-1127	BTS-127	
R34	4700Ω	2	A232-1165	BTB-4700	Note 1

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: FIRESTONE PART No.	IRC PART No.	NOTES
R35	270KΩ	½	A231-2207	BTS-270K	
R36	470KΩ	½	A232-1213	BTA-470K	
R37	8200Ω	½	A231-1171	BTS-8200	
R38	100KΩ	½	A231-1197		
R39	100KΩ	½	A231-1197		
R40	1800Ω	½	A231-1155	BTS-1800	
R41	47KΩ	½	A231-1189	BTS-47K	
R42	10 Meg	½	A231-2345	BTS-10 Meg	Note 5
R43	470KΩ	½	A231-1213	BTS-470K	Note 5
R44	470KΩ	½	A231-1213	BTS-470K	Note 5
R45	330Ω	1	A232-1137	BTA-330	
R46	3250	7	A2134-4	1 3/4A-3500	
R47	1800Ω	½	A231-1155	BTS-1800	
R48	220KΩ	½	A231-1205	BTS-220K	
R49	1 Meg	½	A231-1221	BTS-1 Meg	
R50	3300Ω	½	A231-1161	BTS-3300	
R51	8200Ω	½	A231-1171	BTS-8200	
R52	5600Ω	½	A231-1167	BTS-5600	
R53	27KΩ	½	A231-1183	BTS-27K	
R54A	22KΩ	½		BTS-22K	
B	8200Ω	½	*PB-20150	BTS-8200	
C	8200Ω	½		BTS-8200	
R55	1.5Meg	½	A231-1225	BTS-1.5Meg	
R56	470KΩ	½	A231-1213	BTS-470K	
R57	47KΩ	½	A231-1189	BTS-47K	
R58	3900Ω	½	A231-1163	BTS-3900	

RESISTORS (CONT.)

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: FIRESTONE PART No.	IRC PART No.	NOTES
R59	1.5Meg	½	A231-1225	BTS-1.5 Meg	
R60	1000Ω	½	A231-1149	BTS-1000	
R61	47KΩ	1	A232-1189	BTA-47K	
R62	150KΩ	1	A232-1201	BTA-150K	
R63	3300Ω	2	A233-1161	BTB-3300	
R64	3300Ω	2	A233-1161	BTB-3300	
R65	8200Ω	½	A231-1171	BTS-8200	
R66	100KΩ	½	A231-1197	BTS-100K	
R67	100KΩ	½	A231-1197	BTS-100K	
R68	3.3Meg	½	A231-2133	BTS-3.3Meg	
R69	2700Ω	½	A231-1159	BTS-2700	
R70	4700Ω	½	A231-1165	BTS-4700	
R71	470KΩ	½	A231-1213	BTS-470K	
R72	5600Ω	½	A231-1167	BTS-5600	

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: FIRESTONE PART No.	IRC PART No.	NOTES
R73	1800Ω	½	A231-1155	BTS-1800	
R74	100KΩ	½	A231-1197	BTS-100K	
R75	220KΩ	½	A231-1205	BTS-220K	
R76	470KΩ	½	A231-1213	BTS-470K	
R77	82Ω	½	A231-1123		
R78	150Ω	2	A233-1129	BW-2 150	Note 2
R79	2.2Ω	½	A23159		
R80	82Ω	½	A231-1123	BTS-82	Note 4
R81	4700Ω	2	A233-1165	BTB-4700	
R82	4700Ω	2	A233-1165	BTB-4700	
R83	60Ω	10	A21134-2		Note 3
R84	1.2Ω	1	A23151		
R85	2500Ω	15	A21134-3	2D-2500	Note 6

Note 1. Some models use a 5600Ω resistor in this application.
Note 2. Omitted in chassis #105-2-700120 & 105-2-700150, 105-2-140
Note 3. Some models use a 75Ω resistor or two 60Ω resistors in series in this application.
Note 4. Not used in all models.
Note 5. Items R42, R43, R44, C44, C45, C46 may be combined in one unit. (Part No. PB-20152).
*. Items R54A, R54B, R54C, C50A, C50B, C50C are combined in one unit.
Some models may use seperate items R54A (A231-1181) 22KΩ, R54B (A231-1181) 22KΩ, R54C (A231-1171) 8200.
Note 6. When continuous tuner is used R85 is 2000Ω.

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: FIRESTONE PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	RCA PART No.
T1	117VAC	700VCT	5VAC	6.3VAC	A-10109		P-3089		R-47ES	
	② 1.78A	.200ADC	②3A	② 7.9A						
				Sec. 4						
				6.3VAC						
				② 1.2A						

TRANSFORMER (SWEEP CIRCUITS)

ITEM No.	RATING: DC RESISTANCE PRI.	RATING: DC RESISTANCE SEC.	REPLACEMENT DATA: FIRESTONE PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	RCA PART No.	NOTES
T2	160Ω	950Ω	A-10106	A-8111		TBO-2 ②	A-97X ③	208T2 ②	Vert. Osc. Trans.
			A-10134 ①						
			PB10125 ④						
T3	405ΩTap ② 55Ω	19Ω Tap ② 15Ω, 1Ω	A-10135	A-8130 ⑥⑦	HVO-10 ⑤	TFB-12 ⑤	D-14 ⑥⑧		Horiz. Output Trans.
		SEC 2 0Ω	A-10104 ④						
T4	1300Ω	9Ω	A-10115-4	A-8112	A-3036	TSO-8	A-99X ⑤		Vert. Output Trans.
T5A	13Ω		A-28302-1E	DY-8A	MDF-70	TY-2 ①	Y-12	206D1 ①	Horiz. Deflection Coils
B	65Ω		A-28302-1 ⑩						Vert. Deflection Coils
T6	1030Ω		A-28278-3 ①						EM-PM Focus Coil
			A-28295-2C						
			A-28282 ⑨						
			A 28295-2 ⑨						
T7	27Ω		A-28292	WC-5 ⑨	MWC-1 ⑨	TWL-1	WC-11 ⑨	212R1	Horiz. Lin. Coil.
T8	1Ω		A-28279-1		MWC-2 ⑨	TW-2		201R4	Width Coil

① Used on chassis 105-2-700-100 & 105-2-700-104.
② Mount on top of chassis.
③ Drill one new mtg. hole.
④ Alternate trans.
⑤ Drill new mtg. holes.
⑥ Use with width coil WC-5.
⑦ Wire as shown on replacement installation schematic No. 4 & 5A.
⑧ Use with width coil. WC-11.
⑨ Alternate deflection yoke.
⑩ Used on chassis 105-2-700-100 & 105-2-700-104.
⑪ Use orginal deflection coil network.
⑫ Alternate focus coil.
⑬ Focus coil used on chassis 105-2-700-100.
⑭ Enlarge mtg. hole.
⑮ Wire as in original circuit.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: FIRESTONE PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	NOTES
T9	6.1KΩ	3.4Ω	345Ω	.74Ω		A-3677 ①	A-3028	RO-9 ①	S-3X ①	① Drill one new mtg. hole.

SPEAKER

ITEM No.	RATINGS: SIZE	RATINGS: FIELD	RATINGS: V. C. IMP.	REPLACEMENT DATA: FIRESTONE PART No.	JENSEN PART No.	QUAM PART No.	NOTES
SP1	5"	PM	3.4Ω	PC-5866	ST-105 Mod. P5-X	5A07	

FILTER CHOKE

ITEM No.	RATINGS: TOTAL DIRECT CURRENT	RATINGS: D.C. RESISTANCE	RATINGS: INDUCTANCE (0 CURRENT 1000 ~)	REPLACEMENT DATA: FIRESTONE PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.
L1	.200A	63Ω	1.57HY	A-1406	C-2325 ①	C-2996 ①	TR-1515 ①	C-21X ①

① Drill one new mtg. hole.

PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA			NOTES
		PRI.	SEC.	Firestone PART No.	MERIT PART No.	IRC PART No.	
L2	Ant. Trans.	0Ω CT	0Ω	A28280-14			High Band
L3	Ant. Trans.	0Ω CT	0Ω	A28280-15			Low Band
L4	Ant. Coils	0Ω					
L5	RF Coil	0Ω					Channel 13
L6	RF Coils	0Ω					
L7	Mixer Grid Coil	0Ω					Channel 13
L8	Mixer Grid Coils	0Ω					
L9	Osc. Plate Coil	0Ω CT		A28280-3			Channel 13
L10	Osc. Coils	0Ω					
L11	1st. Video IF	.6Ω		A28280-19	TV-103 ■		
L12	2nd. Video IF	.1Ω		A3392	TV-102 ■		
L13	Fil. Choke	.27Ω		A28276		CL-1	.82 Microhenry
L14	3rd. Video IF	.1Ω		A3392	TV-103 ■		
L15	Fil. Choke	.27Ω		A28276		CL-1	.82 Microhenry
L16	4th. Video IF	.1Ω		A3392	TV-102 ■		
L17	RF Choke	2.8Ω		A28253			
L18	Series Peaking Coil	9.5Ω		A28255-2	TV-184		194 Microhenries
L19	Shunt Peaking Coil	5Ω		A28255-1	TV-181		130 Microhenries
L20	Series Peaking Coil	9.5Ω		A28255-2	TV-184		194 Microhenries
L21	Shunt Peaking Coil	5Ω		A28255-1	TV-181		130 Microhenries
L22	Series Peaking Coil	7Ω		A28255-1	TV-181		130 Microhenries
L23	Shunt Peaking Coil	9.5Ω		A28255-4			314 Microhenries
L24	Sound IF	1.8Ω		A28286	TV-151		
L25	Ratio Det.	5.5Ω	1.8ΩCT	A1201 *	TV-115		Tertiary Winding -.7Ω
L26	Horiz. Osc.	60Ω		A28263	TV-163		

* Alternate part #A1202
■ Enlarge mounting hole.

MISCELLANEOUS

ITEM No.	PART NAME	FIRESTONE PART No.	NOTES
M1A	RF Tuner	A54946	TT3-TT3X (Less Tubes)
B	RF Tuner	A541114	TT5AL (Less Tubes)
C	RF Tuner	A54805	Turret Type (Less Tubes)
D	RF Tuner	A54900	Continuous Type (Less Tubes)
M2	Ion Trap	A3206	
B2	Trimmer	A1772	Horiz. Drive (25-280MMF)
	Knob	PA39220	Vert. Hold
	Knob	PC39209-2	Channel Selector (Model 13-G-107)
	Knob	PC39212-2	Fine Tuning (Model 13-G-107)
	Knob	PC39211-2	Off/On Volume (Model 13-G-107)
	Knob	PC39213-2	Contrast (Model 13-G-107)
	Knob	PC39209-5	Channel Selector (Model 13-G-108)
	Knob	PC39212-5	Fine Tuning (Model 13-G-108)
	Knob	PC39211-5	Off/On Volume (Model 13-G-108)
	Knob	PC39213-5	Contrast (Model 13-G-108)
	Knob	PC39209-3	Channel Selector (Model 13-G-109 & 13-G-122)
	Knob	PC39212-2	Fine Tuning (Model 13-G-109 & 13-G-122)
	Knob	PC39211-3	Off/On Volume (Model 13-G-109 & 13-G-122)
	Knob	PC39213-2	Contrast (Model 13-G-109 & 13-G-122)
	Knob	PC39209-4	Channel Selector (Model 13-G-109A)
	Knob	PC39212-4	Fine Tuning (Model 13-G-109A)
	Knob	PC39211-4	Off/On Volume (Model 13-G-109A)
	Knob	PC39213-4	Contrast (Model 13-G-109A)
	Cabinet	PE60145-1F	Model 13-G-107
	Cabinet	PE60145-3F	Model 13-G-108
	Cabinet	PE60132-1F	Model 13-G-109
	Cabinet	PE60138-1F	Model 13-G-109A
	Cabinet	PE60150-1F	Model 13-G-122
	Back Cover	PC62360	Model 13-G-107 & 13-G-108
	Back Cover	PC62340	Model 13-G-109 & 13-G-109A
	Back Cover	PC62398	Model 13-G-122
	Safety Glass	PB62361	Model 13-G-107 & 13-G-108
	Safety Glass	PC62368-1	Model 13-G-109
	Safety Glass	PC62368-2	Model 13-G-109A
	Safety Glass	PB62353	Model 13-G-122

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

For touch-up adjustment of the RF Tuner Oscillator Adjustments, it is necessary to remove the chassis from the cabinet (See disassembly instructions.)

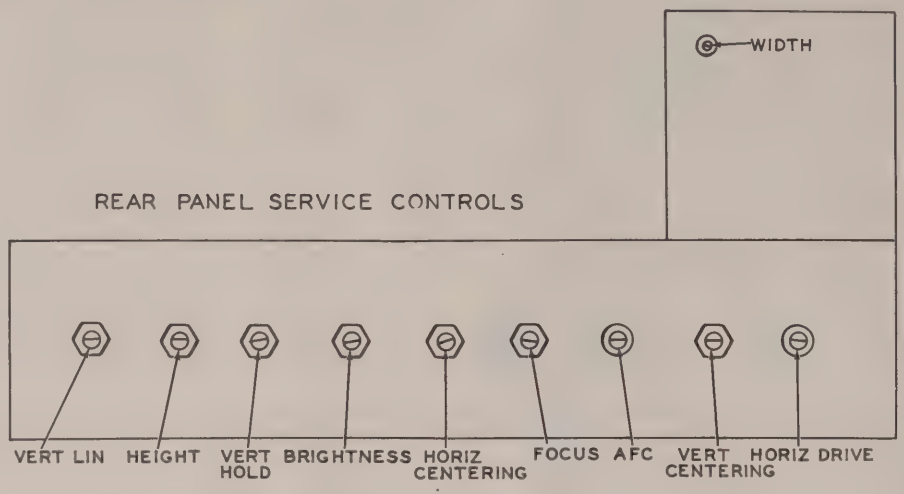
PICTURE TUBE SAFETY GLASS CLEANING

For safety glass cleaning, remove 8 metal screws and 4 clamps and remove safety glass. Use extreme caution when removing safety glass.

PICTURE TUBE REMOVAL

For picture tube removal it is necessary to remove chassis. (See disassembly instructions).

SERVICE ADJUSTMENT LOCATION



HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

Adjustment of the Horiz. AFC slug (L26) can be made from rear of chassis. For location see rear panel service control chart above.

SOUND DETECTOR BUZZ ADJ.

To eliminate Sound IF Detector buzz, adjust the Ratio Detector Secondary (L25) located on top of chassis. (See tube placement chart)

CENTERING

Vert. and Horiz. centering can be accomplished by electrical centering controls, located on rear of chassis. For location see rear panel service control chart above.

DISASSEMBLY INSTRUCTIONS

1. Remove 4 push on type control knobs from front panel.
2. Remove 16 metal screws. Remove rear cover.
3. Remove 2 metal screws. Remove antenna bracket.
4. Disconnect speaker. Remove 2 speaker nuts. Remove speaker.
5. Remove 4 chassis bolts. Remove chassis.

L. F. [illegible]
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PHOTOFACT* Folder

MOTOROLA MODELS BK2A, BK2M, CT2A, CT2M, GMT2A, GMT2M,HJ2A, HJ2M, HN2A, HN2M, KR2A, KR2M, OE2A, OE2M, PC2A, PC2M,PD2A, PD2M, SR2A, SR2M, 702, 802 (Ch. 2A, 2M, BT-2, P6-2, P8-2)

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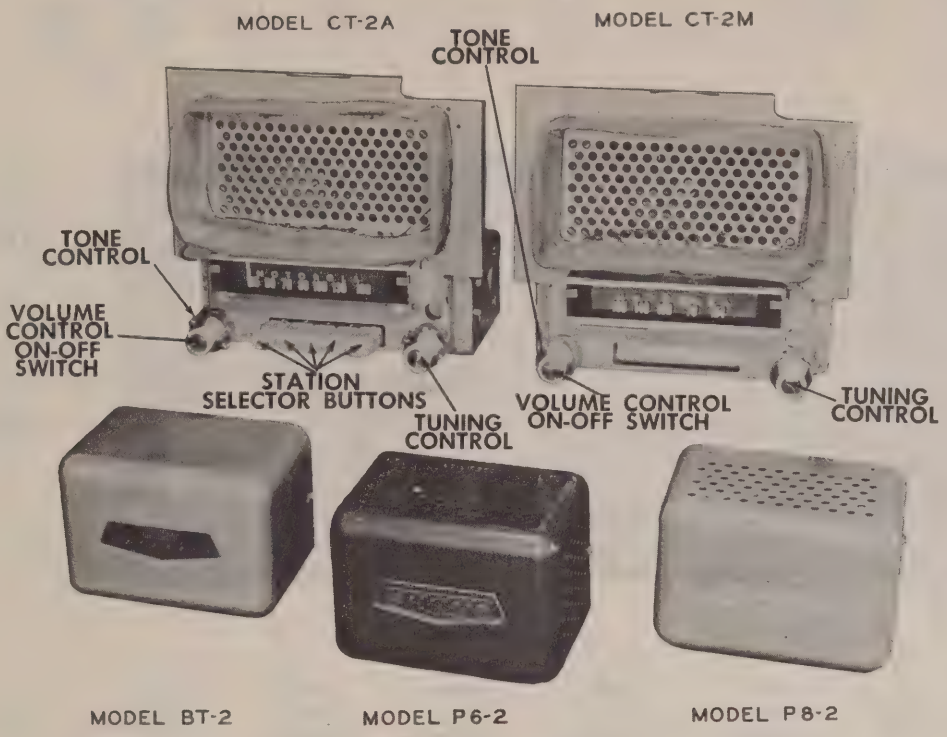
MOTOROLA MODELS BK2A, BK2M, CT2A, CT2M, GMT2A, GMT2M, HJ2A, HJ2M, HN2A, HN2M, KR2A, KR2M, OE2A, OE2M, PC2A, PC2M, PD2A, PD2M, SR2A, SR2M, 702, 802 (Ch. 2A, 2M, BT-2, P6-2, P8-2)



TRADE NAME	Motorola Chassis 2A, 2M, BT-2, P6-2, P8-2 (See Model Listings Below)
MANUFACTURER	Motorola Inc., 4545 Augusta Blvd., Chicago 51, Ill.
TYPE SET	Battery Operated Automobile Superheterodyne Receiver
TUBES	See Parts List For Individual Chassis

POWER SUPPLY 6 Volt Storage Battery — RATINGS 5.6 Amps. @ 6.3 Volts DC (Using Ch. P6-2)
TUNING RANGE—BROADCAST 535-1605 KC — 7.2 Amps. @ 6.3 Volts DC (Using Ch. P8-2)

MODEL	AUTOMOBILE	TUNER CHASSIS	POWER CHASSIS
BK2A BK2M	1942, 1946 thru 1952 Buick (Except 1942 thru 1948 Buick Special)	2A 2M	P6-2 or P8-2
CT2A CT2M	1951, 1952 Chevrolet	2A 2M	P6-2 or P8-2
GMT2A GMT2M	1948 thru 1952 GMC & Chev. Trucks	2A 2M	P6-2 or P8-2
HJ2A HJ2M	1951, 1952 Henry "J"	2A 2M	P6-2 or P8-2
HN2A HN2M	1951, 1952 Hudson	2A 2M	P6-2 or P8-2
KR2A KR2M	1951, 1952 Kaiser	2A 2M	P6-2 or P8-2
OE2A OE2M	1951, 1952 Olds 88 "Super"	2A 2M	P6-2 or P8-2
PC2A PC2M	1946 thru 1952 Pontiac	2A 2M	P6-2 or P8-2
PD2A PD2M	1951, 1952 Packard	2A 2M	P6-2 or P8-2
SR2A SR2M	1950, 1951, 1952 Studebaker	2A 2M	P6-2 or P8-2
702	Universal *	BT-2	P6-2
802	Universal *	BT-2	P8-2

* Requires appropriate control head and speaker kit.

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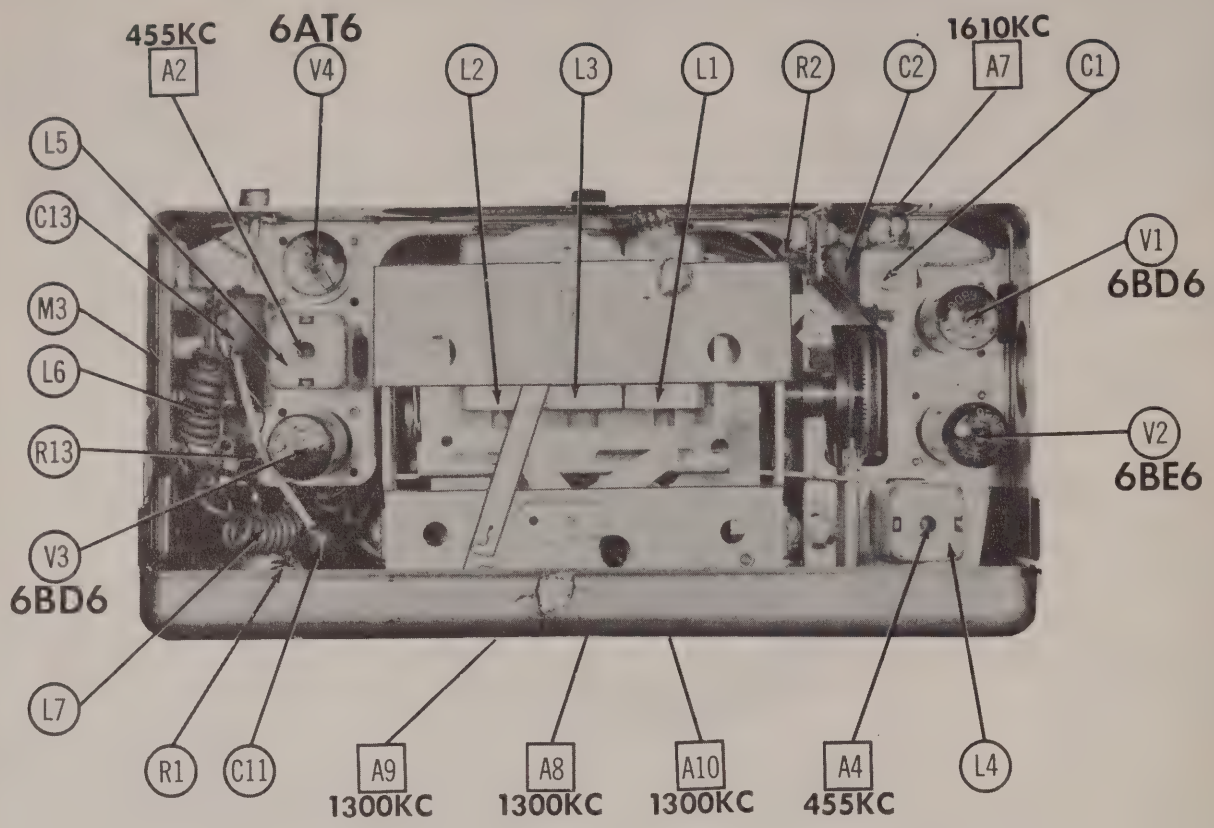
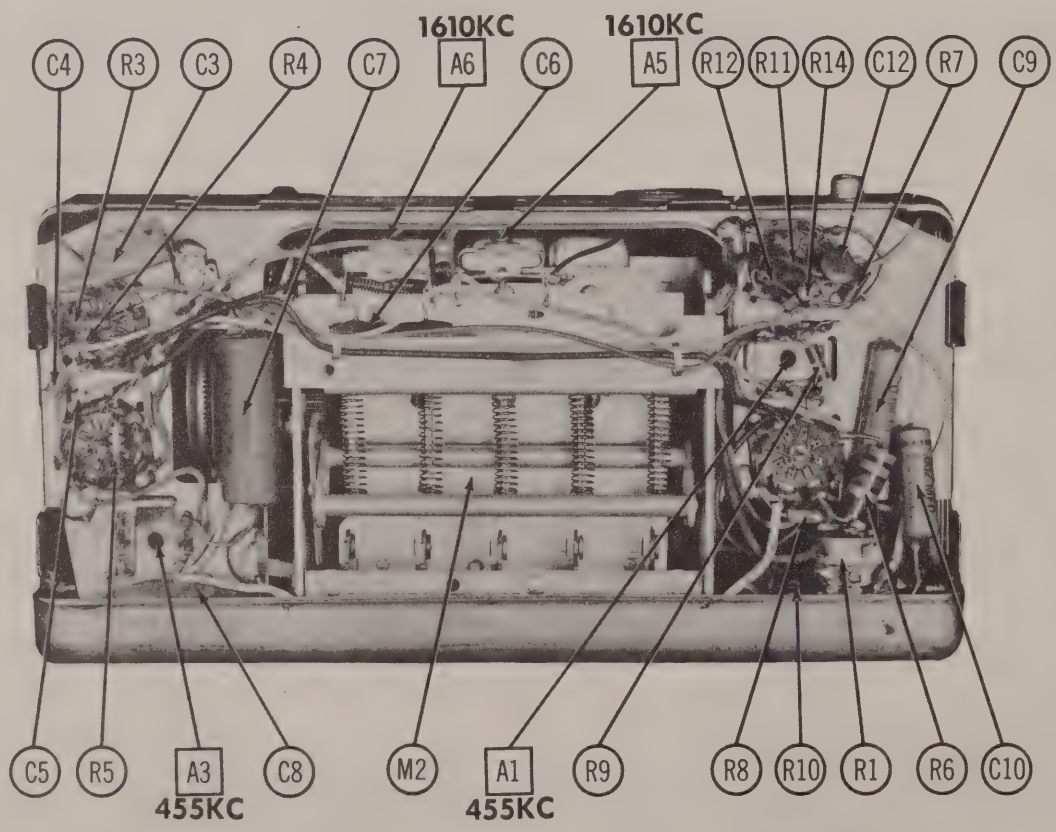
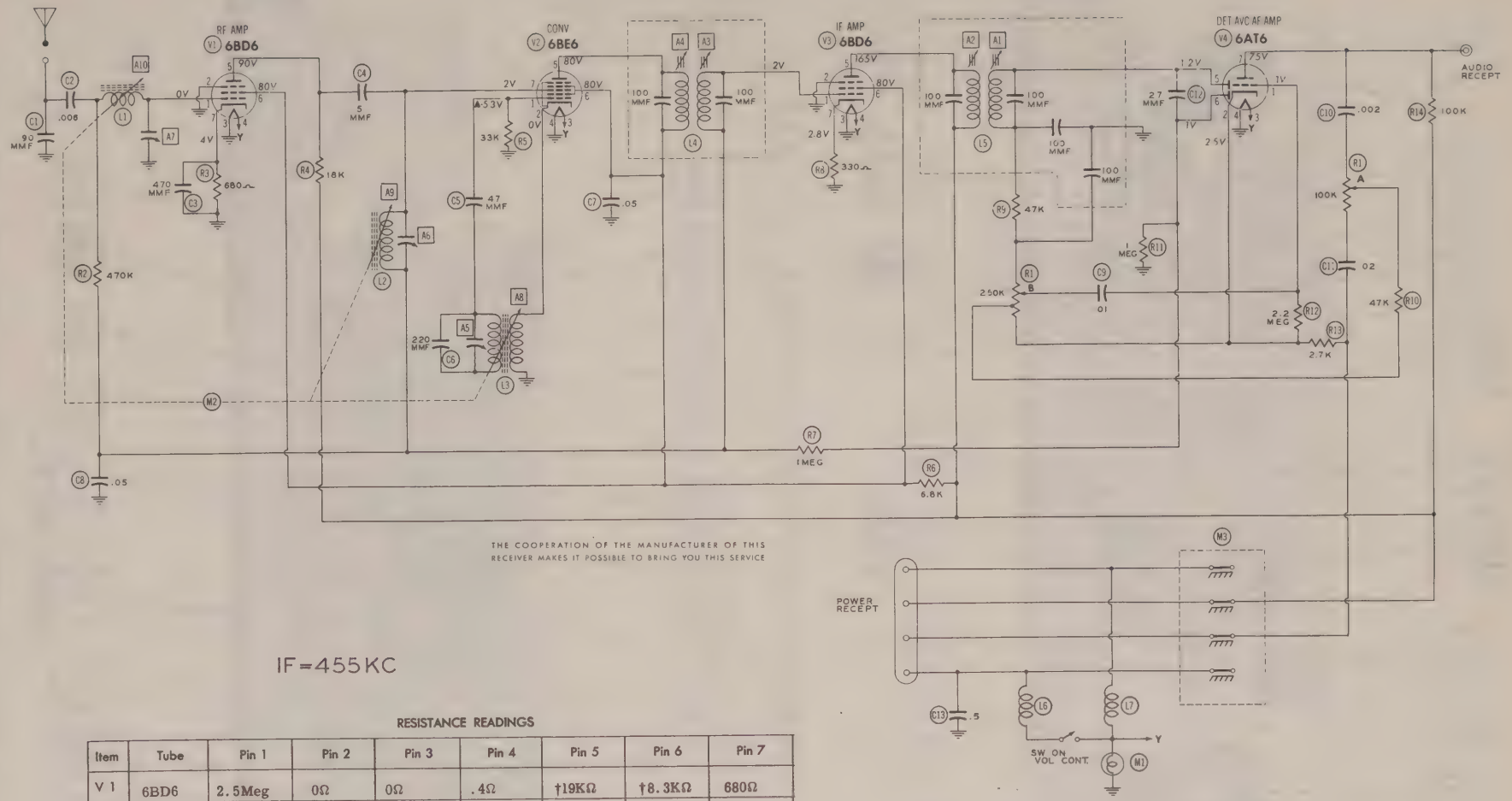


CHASSIS TOP VIEW-MODEL CT-2A



CHASSIS BOTTOM VIEW-MODEL CT-2A



IF=455KC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	6BD6	2.5Meg	0Ω	0Ω	.4Ω	†19KΩ	†8.3KΩ	680Ω
V 2	6BE6	33KΩ	1Ω	.4Ω	0Ω	†8.3KΩ	†8.3KΩ	2 Meg
V 3	6BD6	2 Meg	0Ω	0Ω	.4Ω	†1.5KΩ	†8.3KΩ	330Ω
V 4	6AT6	2.2Meg	2.7KΩ	.4Ω	0Ω	300KΩ	1 Meg	†100KΩ

▲ TAKEN WITH VACUUM TUBE VOLTMETER
† MEASURED FROM PIN 7 OF V18
MEASUREMENTS TAKEN USING P8-2 POWER CHASSIS

1 - DC Voltage measurements are at 20,000 ohms per volt, AC Voltages measured at 1000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Battery voltage maintained at 6.3 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6 - Volume control at maximum, no signal applied for voltage measurements.

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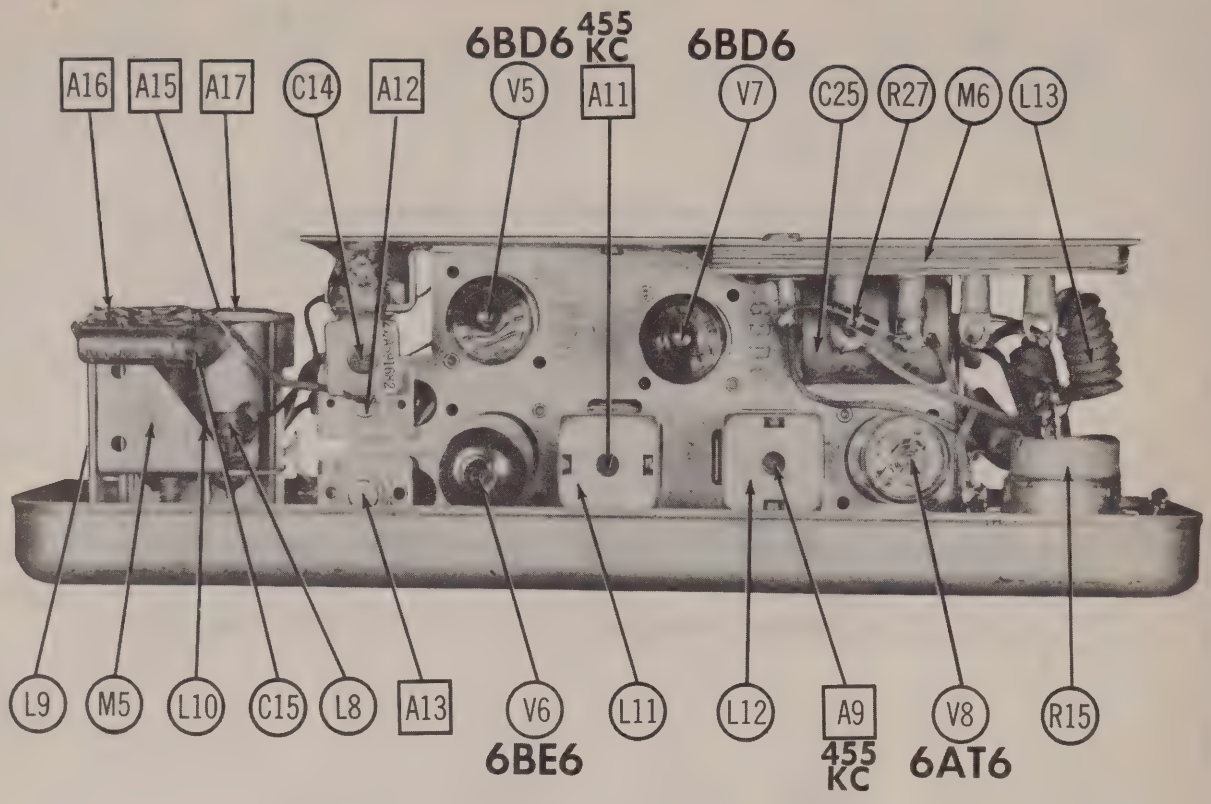
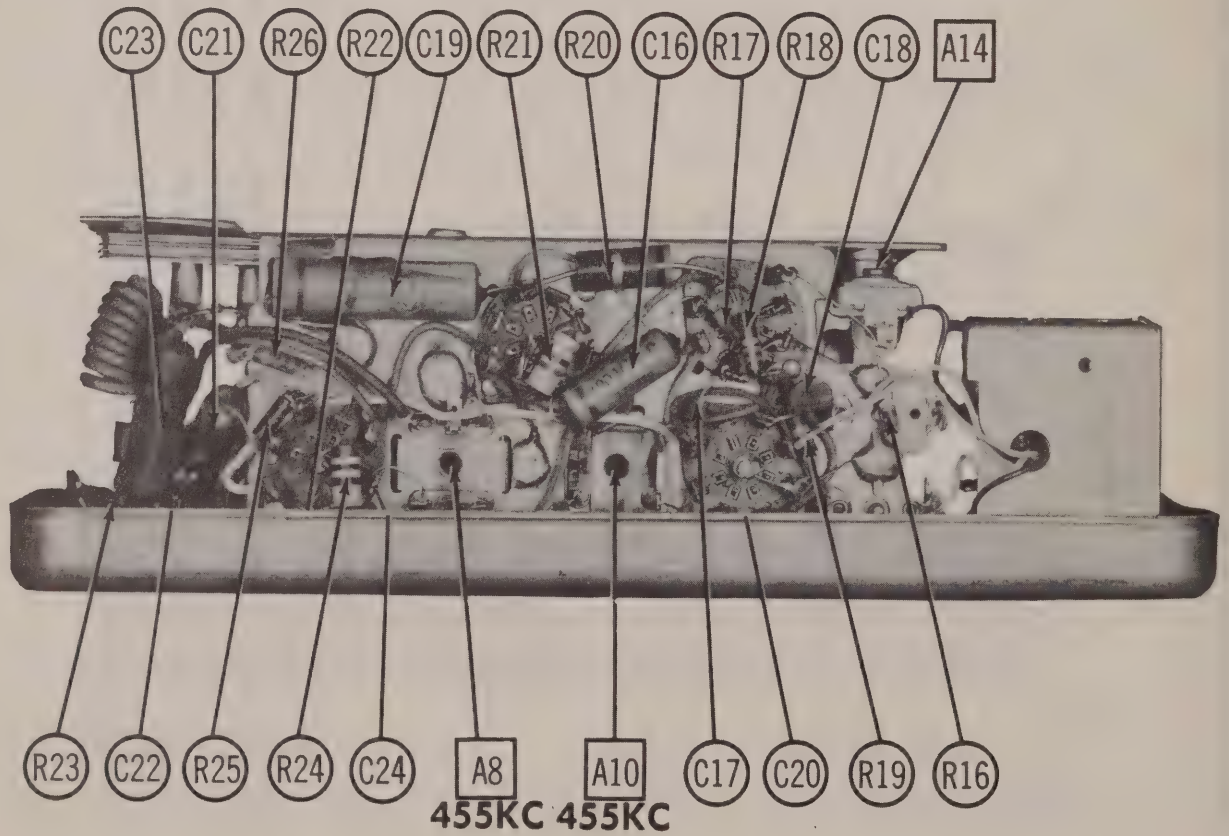
197-7

CHASSIS 2A

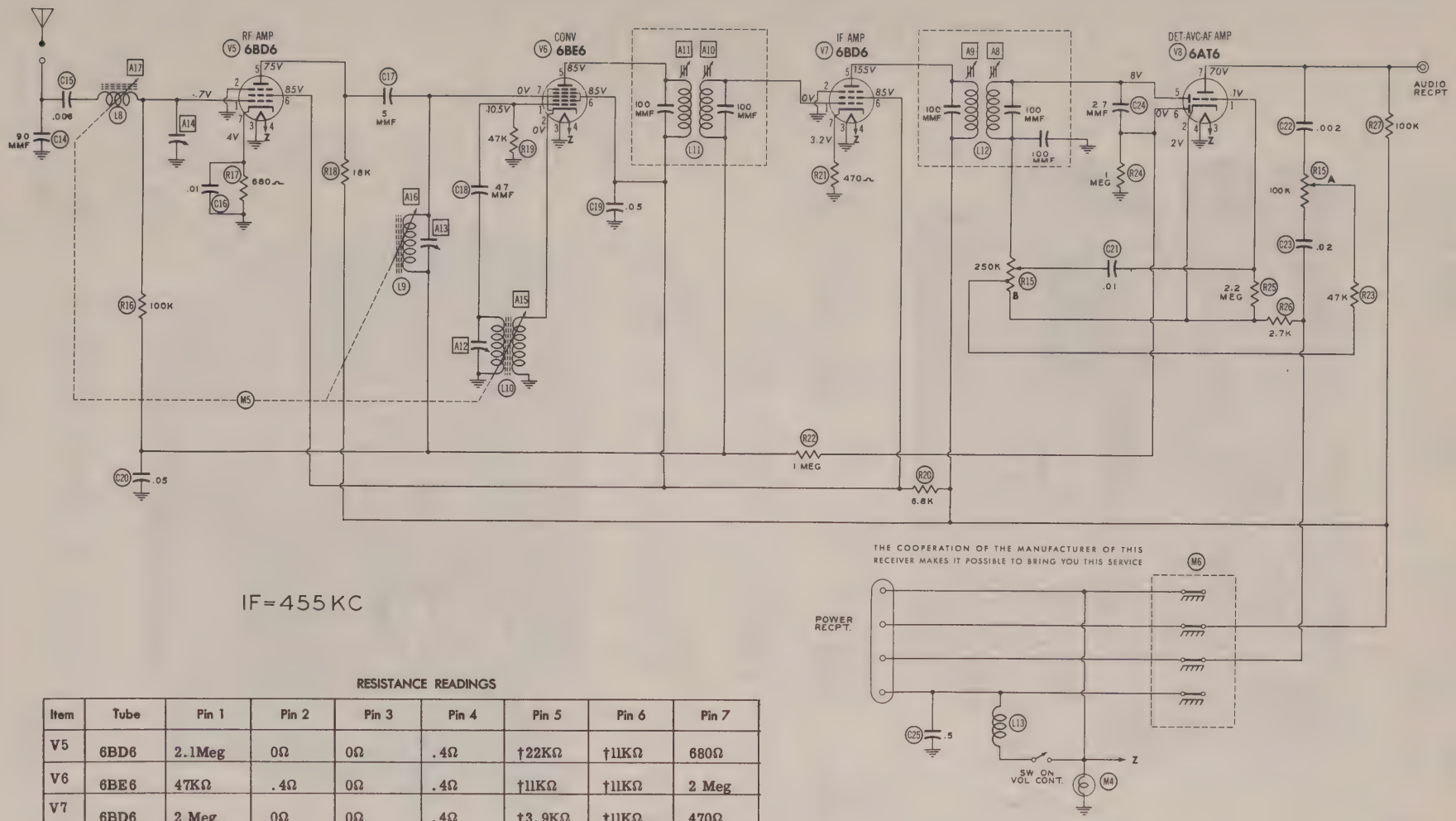
MOTOROLA CHASSIS 2A



CHASSIS TOP VIEW-MODEL CT-2M



CHASSIS BOTTOM VIEW-MODEL CT-2M



RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V5	6BD6	2.1Meg	0Ω	0Ω	.4Ω	†22KΩ	†11KΩ	680Ω
V6	6BE6	47KΩ	.4Ω	0Ω	.4Ω	†11KΩ	†11KΩ	2 Meg
V7	6BD6	2 Meg	0Ω	0Ω	.4Ω	†3.9KΩ	†11KΩ	470Ω
V8	6AT6	2.2Meg	2.7KΩ	0Ω	.4Ω	250KΩ	1 Meg	†100KΩ

▲ TAKEN WITH VACUUM TUBE VOLTMETER
† MEASURED FROM PIN 7 OF V14
MEASUREMENTS TAKEN USING P6-2 POWER CHASSIS

1 - DC Voltage measurements are at 20,000 ohms per volt, AC Voltages measured at 1000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Battery voltage maintained at 6.3 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6 - Volume control at maximum, no signal applied for voltage measurements.

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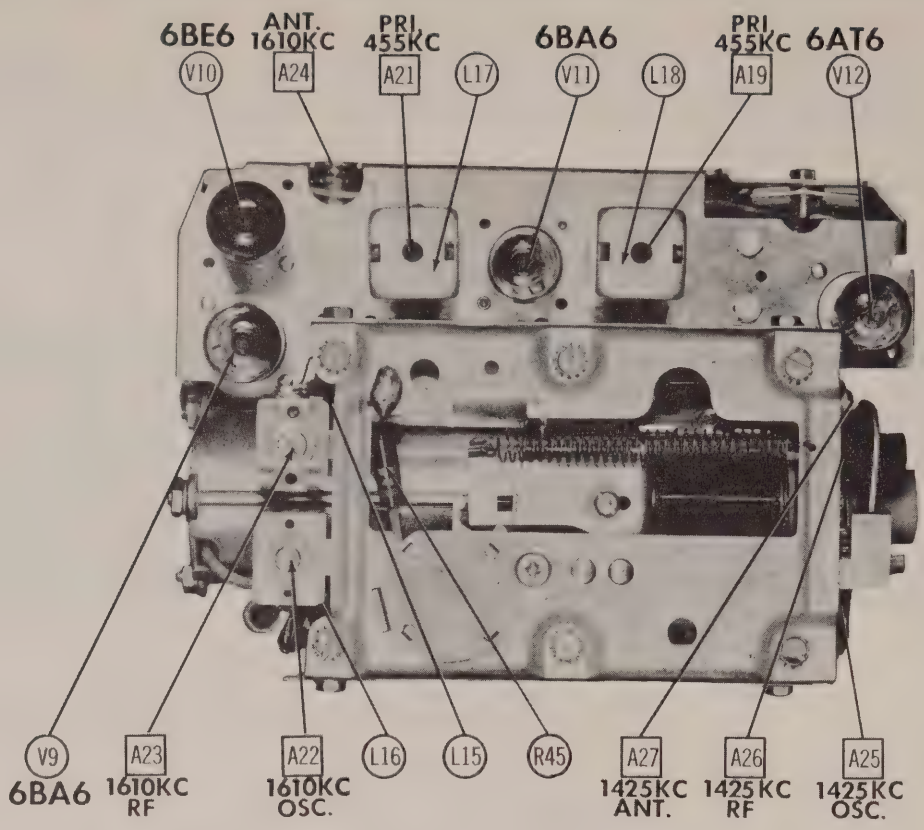
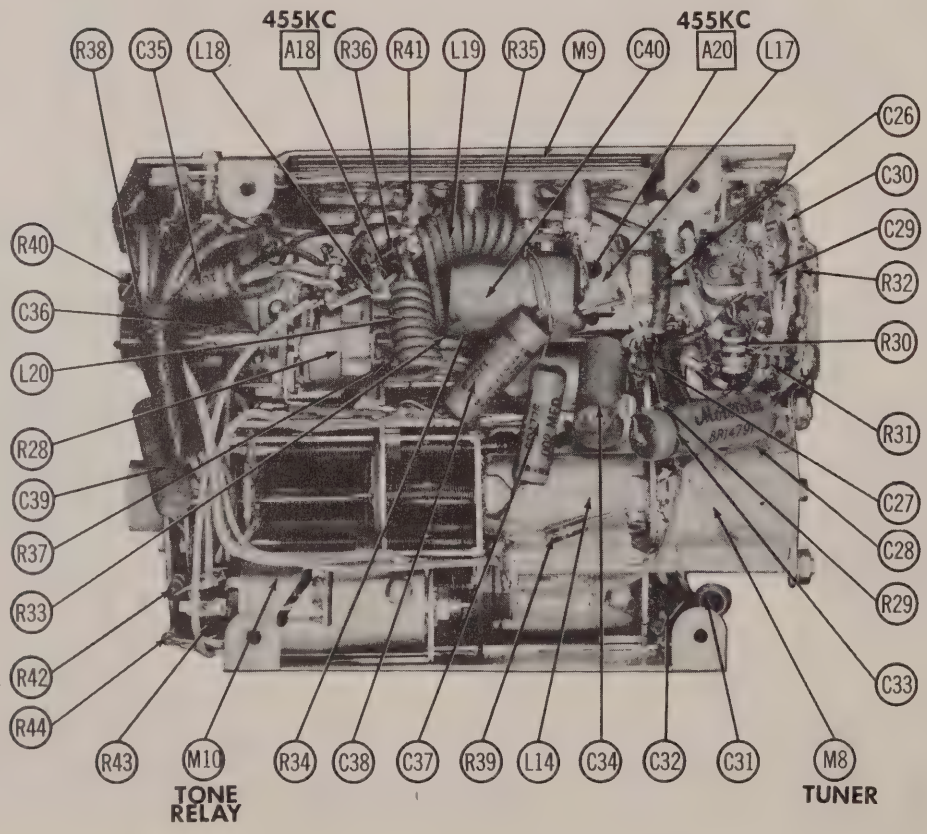
CHASSIS 2M

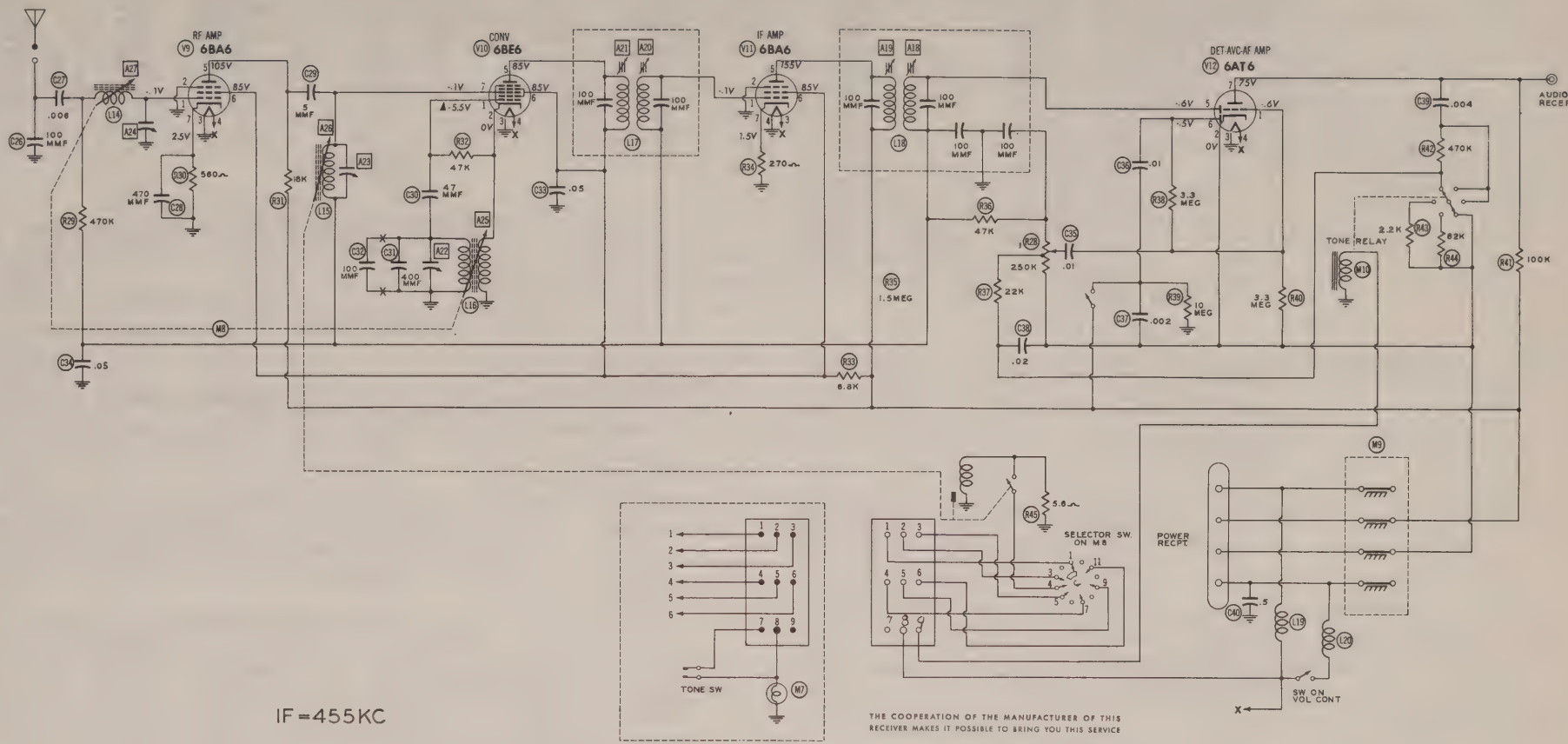
MOTOROLA
CHASSIS 2M



TOP VIEW-CHASSIS BT-2



BOTTOM VIEW-CHASSIS BT-2



1 - DC Voltage measurements are at 20,000 ohms per volt, AC Voltages measured at 1000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Battery voltage maintained at 6.3 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6 - Volume control at maximum, no signal applied for voltage measurements.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V9	6BA6	2.3Meg	0Ω	0Ω	.4Ω	†22KΩ	†11KΩ	560Ω
V10	6BE6	47KΩ	.6Ω	0Ω	.4Ω	†11KΩ	†11KΩ	1.8Meg
V11	6BA6	1.8Meg	0Ω	.4Ω	0Ω	†3.9KΩ	†11KΩ	270Ω
V12	6AT6	3.3Meg	0Ω	0Ω	.4Ω	300KΩ	6.6Meg	†100KΩ

▲ TAKEN WITH VACUUM TUBE VOLTMETER
† MEASURED FROM PIN 7 OF V14
MEASUREMENTS TAKEN USING P6-2 POWER CHASSIS

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CHASSIS BT-2

197-7

MOTOROLA
CHASSIS BT-2

PARTS LISTS AND DESCRIPTIONS CHASSIS 2A

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: MOTOROLA PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RTMA BASE TYPE	INSTALLATION NOTES
V1	RF Amplifier	6BD6	6BD6	7BK	
V2	Converter	6BE6	6BE6	7CH	
V3	IF Amplifier	6BD6	6BD6	7BK	
V4	Det.-AVC-AF Amp.	6AT6	6AT6	7BT	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: MOTOROLA PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C1	90		21A591682							
C2	.006	100	8A4529	P688-006	D6-602	PTE6D6	GP2-333-602	PT626	6TM-D6	
C3	470	500	21R6673	1468-0005	D6-471	5W5T5	GP2K-471	MC245	1FM-35	
C4	5		21K70720	SI5	TCZ-4.7		GP1K-050	UC-555	5GA-V5	
C5	47		21R6513	SI47	D6-470	TM5Q5	GP1K-470	UC-5447	5GA-Q47	
C6	220		21R115986							
C7	.05	400	8R14791	P488-05	DF-503	PTE4S5		PT415	4TM-S5	
C8	.05	100	8R13514	P288-05	DF-503	PJ2S5		PT415	2TM-S5	
C9	.01	200	8R23053	P488-01	D6-103	PTE4S1	GP2-333-103	PT411	4TM-S1	
C10	.002	400	8R4736	P688-002	D6-202	PTE6D2	GP2-333-202	PT622	6TM-D2	
C11	.02	400	8R12699	P488-02	DF-203	PTE4S2		PT412	4TM-S2	
C12	27		21R410089				NPOK-270			
C13	.5	100	8K17028	P185-5		MP2P5		RF480	68P20	

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MOTOROLA PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A B C	100KΩ 250KΩ Switch	1/2	18B512084*	QJ-399A **			UF15L UR254-T753 US-26	Tone-Panel Volume-Tap ⓐ 75KΩ-Rear Attach to R1B
* Used in models BK2A, CT2A, GMT2A, KR2A, OE2A & PD2A, ** CONCENTRIKIT EQUIVALENT-KIT K-2, BASE ELEMENTS & SHAFTS B11-128 & P1-206 (Panel) B18-130X & R1-220 (Rear) & SWITCH 76-1.								
R1A B C	100KΩ 250KΩ Switch	1/2	18K512740 †	QJ-406A††			UF15L UR254-T753 US-26	Tone-Panel Volume-Tap ⓐ 75KΩ-Rear Attach to R1B
† Used in models HJ2A, PC2A, & SR2A. †† CONCENTRIKIT EQUIVALENT -KIT K-2, BASE ELEMENTS & SHAFTS B11-128 & P1-200 (Panel) B18-130X & R1-216 (Rear) & SWITCH 76-1								
R1A B C	100KΩ 250KΩ Switch	1/2	18K512739 §	QJ-407A§§			UF15L UR254-T753 US-26	Tone-Panel Volume-Tap ⓐ 75KΩ-Rear Attach to R1B
§ Used in model HN2A. §§ CONCENTRIKIT EQUIVALENT-KIT K-2, BASE ELEMENTS & SHAFTS B11-128 & P1-112 (Panel) B18-130X & R1-126 (Rear) & SWITCH 76-1								

RESISTORS

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: MOTOROLA PART No.	IRC PART No.	NOTES
R2	470KΩ	1/2	6R6032	BTS-470K	
R3	680Ω	1/2	6R6040	BTS-680	
R4	18KΩ	1/2	6R5591	BTS-18K	
R5	33KΩ	1/2	6R6012	BTS-33K	
R6	6800Ω	2	6R5690	BTB-6800	
R7	1 Meg	1/2	6R6004	BTS-1 Meg	
R8	330Ω	1/2	6R6022	BTS-330	

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: MOTOROLA PART No.	IRC PART No.	NOTES
R9	47KΩ	1/2	6R6056	BTS-47K	
R10	47KΩ	1/2	6R6056	BTS-47K	
R11	1 Meg	1/2	6R6004	BTS-1 Meg	
R12	2.2Meg	1/2	6R3927	BTS-2.2Meg	
R13	2700Ω	1/2	6R5577	BTS-2700	
R14	100KΩ	1/2	6R6075	BTS-100K	

SPEAKER

ITEM No.	RATINGS: SIZE	RATINGS: FIELD	RATINGS: V. C. IMP.	REPLACEMENT DATA: MOTOROLA PART No.	REPLACEMENT DATA: JENSEN PART No.	REPLACEMENT DATA: QUAM PART No.	NOTES
SP1	6" x 9"	PM	3.2Ω	50C513193 50C513544 ① 50C513195 ① 50C513197 ① 50C513200 ① 50K513194 ② 50K513196 ② 50K513545 ② 50K513198 ② 50K513201 ②	ST-810 Mod. P69-V	69A2	① Alternate PM Speakers - All Models using Ch. 2A except Model HN2A ② 6" x 9" PM Speakers used in Model HN2A
SP1	6" x 9"	EM 6 Volt	3.2Ω	50C512159 ③ 50C513202 ③ 50C513204 ③ 50C513206 ③ 50C513542 ③ 50K513199 ④ 50K513203 ④ 50K513205 ④ 50K513207 ④ 50K513543 ④		69EV6	③ Alternate EM Speakers - All Models using Ch. 2A except Model HN2A ④ 6" x 9" EM Speakers used in Model HN2A

COILS (RF-IF)

ITEM No.	USE	DC RES.: PRI.	DC RES.: SEC.	REPLACEMENT DATA: MOTOROLA PART No.	REPLACEMENT DATA: MERIT PART No.	NOTES
L1	Ant. Coil	12Ω		24B520694		
L2	RF Coil	11.5Ω		24K520695		
L3	Osc. Coil	1Ω	4.4Ω	24B520693		
L4	Input IF	18.5Ω	18.5Ω	24C485553	BC-352	
L5	Output IF	18Ω	18Ω	24K485555	BC-355	
L6	Hash Choke	0Ω		24K592269		
L7	Hash Choke	0Ω		24K592269		

DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA: MOTOROLA PART No.	REPLACEMENT DATA	NOTES
M1	Bayonet	6-8	.25	Blue	65X10867		Type No. 44.

MISCELLANEOUS

ITEM No.	PART NAME	MOTOROLA PART No.	NOTES
M2	Tuning Unit	510512128	AT-94
M3	Spark Plate	1B512202	
A7	Trimmer	20A513232	Ant. (20-180MMF)
A6	Trimmer	20A77537	RF
A5	Trimmer	20A77537	Osc.
	Knob	1X520078	Off/On Volume, Tuning (Models BK2A, HJ2A, PC2A)
	Knob	1X513351	Off/On Volume, Tuning (Models CT2A)
	Knob	1X513438	Off/On Volume, Tuning (Model GMT2A)
	Knob	1X513035	Off/On Volume, Tuning (Models HN2A, PD2A, SR2A)
	Knob	1X520575	Off/On Volume, Tuning (Model KR2A)
	Knob	1X512214	Off/On Volume, Tuning (Model OE2A)
	Knob	36K512160	Tone (Models BK2A, CT2A, GMT2A, HJ2A, OE2A, SR2A)
	Knob	36B513220	Tone (Models HN2A, KR2A)
	Knob	36K513169	Tone (Models PC2A, PD2A)
	Knob	36K473550	Lever (Models BK2A, CT2A, GNT2A, HJ2A, OE 2A, SR2A)
	Knob	36K513223	Disc. (Models PC2A, PD2A)
	Knob	36B472865	Lever (Models PC2A, PD2A)

PARTS LIST AND DESCRIPTIONS CHASSIS 2M

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: MOTOROLA PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RTMA BASE TYPE	INSTALLATION NOTES
V5	RF Amplifier	6BD6	6BD6	7BK	
V6	Converter	6BE6	6BE6	7CH	
V7	IF Amplifier	6BD6	6BD6	7BK	
V8	Det.-AVC-AF Amp.	6AT6	6AT6	7BT	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: MOTOROLA PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C14	90		21A591682							
C15	.006	100	8A4529	P688-006	D6-602	PTE6D6	GP2-333-602	PT626	6TM-D6	
C16	.01	100	8R472754	P488-01	D6-103	PTE4S1	GP2-333-103	PT411	4TM-S1	
C17	5		21K70720	SI5	TCZ-4.7		GP1K-050	UC-555	5GA-V5	
V18	47		21K77373	SI47N750	TCN-47		N750K-470	NT- 5447	5TCU-Q47	
V19	.05	400	8R14791	P488-05	DF-503	PTE4S5		PT415	4TM-S5	
C20	.05	100	8R13514	P288-05	DF-503	PJ2S5		PT415	2TM-S5	
C21	.01	100	8R472754	P488-01	D6-103	PTE4S1	GP2-333-103	PT411	4TM-S1	
C22	.002	400	8R4736	P688-002	D6-202	PTE6D2	GP2-333-202	PT622	6TM-D2	
C23	.02	400	8R12699	P488-02	DF-203	PTE4S2		PT412	4TM-S2	
C24	27		8R410089				NP0K-270			
C25	.5	100	8K17028	P185-5		MP2P5		RF480	68P20	

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MOTOROLA PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R15A	100KΩ	1/2	18B512084 *	QJ-399A **			UF15L	Tone-Panel
B	250KΩ	1/2					UR254-T753	Volume-Tap ② 75KΩ-Rear
C	Switch						US-26	Attach to R15B

* Used in models CT2M, GMT2M, KR2M, OE2M, & PD2M.
** CONCENTRIKIT EQUIVALENT-KIT K-2, BASE ELEMENTS & SHAFTS B11-128 & P1-206 (Panel) B18-130X & R1-220 (Rear) & SWITCH 76-1.

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MOTOROLA PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R15A	100KΩ	1/2	18K520517†	QJ-405A ††			UF15L	Tone-Panel
B	250KΩ	1/2					UR254-T753	Volume-Tap ① 75K-Rear
C	Switch						US-26	Attach to R15B

† Used in model BK2M.
†† CONCENTRIKIT EQUIVALENT-KIT K-2, BASE ELEMENTS & SHAFTS B11-128 & P1-302 (Panel) B18-130X & R1-316 (Rear) & SWITCH 76-1.

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MOTOROLA PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R15A	100KΩ	1/2	18K512740§	QJ-406A §§			UF15L	Tone-Panel
B	250KΩ	1/2					UR254-T753	Volume-Tap ② 75K-Rear
C	Switch						US-26	Attach to R15B

§ Used in models HJ2M, PC2M & SR2M.
§§ CONCENTRIKIT EQUIVALENT-KIT K-2, BASE ELEMENTS & SHAFTS B11-128 & P1-200 (Panel) B130X & R1-216 (Rear) & SWITCH 76-1.

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MOTOROLA PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R15A	100KΩ	1/2	18K512739 ♦	QJ-407A ♦♦			UF15L	Tone-Panel
B	250KΩ	1/2					UR254-T753	Volume-Tap ② 75KΩ-Rear
C	Switch						US-26	Attach to R15B

♦ Used in model HN2M.
♦♦ CONCENTRIKIT EQUIVALENT-KIT K-2, BASE ELEMENTS & SHAFTS B11-128 & P11-112 (Panel) B18-130X & R1-126 (Rear) & SWITCH 76-1.

RESISTORS

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: MOTOROLA PART No.	IRC PART No.	NOTES
R16	100KΩ	1/2	6R6075	BTS-100K	
R17	680Ω	1/2	6R6040	BTS-680	
R18	18KΩ	1/2	6R5591	BTS-18K	
R19	47KΩ	1/2	6R6056	BTS-47K	
R20	6800Ω	2	6R5690	BTB-6800	
R21	470Ω	1/2	6R6090	BTS-470	

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: MOTOROLA PART No.	IRC PART No.	NOTES
R22	1 Meg	1/2	6R6004	BTS-1 Meg	
R23	47KΩ	1/2	6R6056	BTS-47K	
R24	1 Meg	1/2	6R6004	BTS-1 Meg	
R25	2.2Meg	1/2	6R6433	BTS-2.2Meg	
R26	2700Ω	1/2	6R5577	BTS-2700	
R27	100KΩ	1/2	6R6075	BTS-100K	

SPEAKER

ITEM No.	RATINGS: SIZE	RATINGS: FIELD	RATINGS: V. C. IMP.	REPLACEMENT DATA: MOTOROLA PART No.	REPLACEMENT DATA: JENSEN PART No.	REPLACEMENT DATA: QUAM PART No.	NOTES
SP2	6" x 9"	PM	3.2Ω	50C513193 50C513544 ① 50C513195 ① 50C513197 ① 50C513200 ① 50K513194 ② 50K513196 ② 50K513545 ② 50K513198 ②	ST-810 Mod. P69-V	69A2	① Alternate PM Speakers - All Models using Ch. 2M except Model HN2M ② 6" x 9" PM Speakers used in Model HN2M ③ Alternate EM Speakers - All Models using Ch. 2M except Model HN2M ④ 6" x 9" EM Speakers used in Model HN2M
SP2	6" x 9"	EM 6 Volt	3.2Ω	50C513159 ③ 50C513202 ③ 50C513204 ③ 50C513206 ③ 50C513542 ③ 50K513199 ④ 50K513203 ④ 50K513205 ④ 50K513207 ④ 50K513543 ④		69EV6	

COILS (RF-IF)

ITEM No.	USE	DC RES.: PRI.	DC RES.: SEC.	REPLACEMENT DATA: MOTOROLA PART No.	REPLACEMENT DATA: MERIT PART No.	NOTES
L8	Ant. Coil	9.5Ω		24K520755		
L9	RF Coil	9.5Ω		24K520755		
L10	Osc. Coil	.4Ω	4Ω	24K520756		
L11	Input IF	18.5Ω	18.5Ω	24C485553	BC-352	
L12	Output IF	19Ω	18Ω	24K485554	BC-355	
L13	Hash Choke	0Ω		24K592269		

DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA: MOTOROLA PART No.	REPLACEMENT DATA:	NOTES
M4	Bayonet	6-8	.25	Blue	65X10867		Type #44

MISCELLANEOUS

ITEM No.	PART NAME	MOTOROLA PART No.	NOTES
M5A	Tuning Unit	51K513356	MT-105
B	Tuning Unit	51D512755	MT-95
C	Tuning Unit	51K512756	M6-100
D	Tuning Unit	51K513058	MT-104
M6	Spark Plate	1B592133	
A14	Trimmer	20A512456	Ant. (20-180MMF)
A13	Trimmer	20A481526	RF. (20-80MMF)
A12	Trimmer	20A485708	Osc. (395-470MMF)
	Knob	1X520078	Off/On Volume, Tuning (Models BK2M, HJ2M, PC2M)
	Knob	1X513351	Off/On Volume, Tuning (Model CT2M)
	Knob	1X513035	Off/On Volume, Tuning (Models HN2M, PD2M, SR2M)
	Knob	1X520575	Off/On Volume, Tuning (Model KR2M)
	Knob	1X512214	Off/On Volume, Tuning (Model OE2M)
	Knob	36K512160	Tone (Models BK2M, CT2M, GMT2M, HJ2M, OE2M, PD2M, SR2M)
	Knob	36B513220	Tone (Models HN2M, KR2M)
	Knob	36K513169	Tone (Model PC2M)
	Knob	36K473550	Lever (Models BK2M, CT2M, GMT2M, HJ2M, OE2M, PD2M, SR2M
	Knob	36K513223	Disc (Models HN2M, KR2M)
	Knob	36B472865	Lever (Model PC2M)

PARTS LIST AND DESCRIPTIONS CHASSIS BT-2

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RTMA BASE TYPE	INSTALLATION NOTES
		MOTOROLA PART No.	STANDARD REPLACEMENT		
V9	RF Amplifier	6BA6	6BA6	7BK	
V10	Converter	6BE6	6BE6	7CH	
V11	IF Amplifier	6BA6	6BA6	7BK	
V12	Det.-AVC AF Amp.	6AT6	6AT6	7BT	

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	MOTOROLA PART No.	JENSEN PART No.	QUAM PART No.	
SP3	6"	PM	3.2Ω	50B513083 50B512974 ① 50B512975 ①	ST-108 Mod. P6-8	6A1	① Alternate PM Speakers used in Ch. BT-2 ② Alternate EM Speakers used in Ch. BT-2
SP3	6"	EM 6 Volt	3.2Ω	50B502807 ②		6EV6	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	MOTOROLA PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C26	100		21B77286	SI100	D6-101	TM5T1	GP1K-101	UC-531	5GA-T1	
C27	.006	100	8A4529	P688-006	D6-602	PTE6D6	GP2-333-602	PT626	6TM-D6	
C28	470	500	21R6073	1468-0005	D6-471	5W5T5	GP2K-471	MC245	1FM-35	
C29	5		21K76720	SI5	TCZ-4.7		GP1K-050	UC-555	5GA-V5	
C30	47		21R6513	SI47	D6-470	TM5Q5	GP1K-470	UC-5447	5GA-Q47	
C31	400						NP0-333-401			Note 1
C32	100			SI100NP0	TCZ-100		NP0-333-101	ZT-531	5TCC-T1	Note 1
C33	.05	400	8R14791	P488-05	DF-503	PTE4S5		PT415	4TM-S5	
C34	.05	100	8R13514	P288-05	DF-503	PJ2S5		PT415	2TM-S5	
C35	.01	100	8R23053	P488-01	D6-103	PTE4S1	GP2-333-103	PT411	4TM-S1	
C36	.01	200	8R472754	P488-01	D6-103	PTE4S1	GP2-333-103	PT411	4TM-S1	
C37	.002	400	8R4736	P688-002	D6-202	PTE6D2	GP2-333-202	PT622	6TM-D2	
C38	.02	100	8R51209	P488-02	DF-203	PTE4S2		PT412	4TM-S2	
C39	.004	400	8K71909	P688-004	D6-402	PTE6D4	GP2-333-402	PT624	6TM-D4	
C40	.5	100	8K17028	P185-5		MP2P5		RF480	68P20	

Note 1. When C31 is 500MMF (Part #21K592327), C32 is not used.

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA		NOTES
		PRI.	SEC.	MOTOROLA PART No.	MERIT PART No.	
L14	Ant. Coil	11Ω		24B71881		
L15	RF Coil	11Ω		24B71881		
L16	Osc. Coil	.6Ω	3Ω	24B592153		
L17	Input IF	17Ω	17Ω	24B485553	BC-352	
L18	Output IF	18Ω	18Ω	24K485555	BC-355	
L19	Hash Choke	0Ω		24K592269		
L20	Hash Choke	0Ω		24K592269		

DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		NOTES
					MOTOROLA PART No.		
M7	Bayonet	7.5	.2	White	65X4151		Type No. 51

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	MOTOROLA PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	
R28	250KΩ	½	18K512869					Volume-Tap@ 75KΩ- Note

Note: Used in models 702 & 802-Alternate Part No. 1K513540.

MISCELLANEOUS

ITEM No.	PART NAME	MOTOROLA PART No.	NOTES
M8	Tuning Unit	1X512894	ST-101
M9	Spark Plate	1B572133	
M10	Relay	1X512923	Tone MR-8
A24	Trimmer	20A592135	Ant. (50-280MMF)
A23	Trimmer	20K481527	RF (20-180MMF)
A22	Trimmer	20K472612	Osc. (30-60MMF)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	MOTOROLA PART No.	IRC PART No.	
R29	470KΩ	½	6R6032	BTS-470K	
R30	560Ω	½	6R6291	BTS-560	
R31	18KΩ	½	6R5591	BTS-18K	
R32	47KΩ	½	6R6056	BTS-47K	
R33	6800Ω	2	6R5690	BTB-6800	
R34	270Ω	½	6R6432	BTS-270	
R35	1.5Meg	½	6R3966	BTS-1.5Meg	
R36	47KΩ	½	6R6056	BTS-47K	
R37	22KΩ	½	6R6028	BTS-22K	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	MOTOROLA PART No.	IRC PART No.	
R38	3.3Meg	½	6R2118	BTS-3.3Meg	
R39	10 Meg	½	6R2109	BTS-10 Meg	
R40	3.3Meg	½	6R2118	BTS-3.3Meg	
R41	100KΩ	½	6R6075	BTS-100K	
R42	470KΩ	½	6R6377	BTS-470K	
R43	2200Ω	½	6R6290	BTS-2200	
R44	82KΩ	½	6R5644	BTS-82K	
R45	5.6Ω	1	6R488139		

ALIGNMENT INSTRUCTIONS

CHASSIS 2A

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

When adjusting tuner cores use special alignment tool (Motorola part #66A76278 or equivalent).
Set volume control at maximum.
Turn tone control to "high" position.
Use insulated alignment tool.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to pin 7 (grid) of 6BE6 (V2). Low side to chassis.	455KC (400% Mod)	Extreme high frequency end.	Across voice coil	A1, A2, A3, A4	Adjust for maximum output. Attenuate generator to maintain 1.79 volts on output meter (1 watt).
2.	Fig. 1	Thru dummy to antenna receptacle	1610KC	"	"	A5, A6 A7	Back tuner cores out to project 1-5/16 inch from ends of coil form. (Remove escutcheon and dial scale bracket to gain access to cores). Adjust A5, A6 and A7 for maximum output.
3.	"	"	1300 KC	With tuning knob move carriage in 5/16 inch from position in step 2.	"	A8, A9 A10	Adjust for maximum output in order given.
4.	"	"	1610KC	Extreme high frequency end.	"	A5, A6 A7	Adjust for maximum output in order given. Cement tuner core adjustments to prevent accidental movement.

Tune receiver to 1300KC signal and if necessary bend pointer to the 1300KC calibration mark on dial.

With receiver installed in car, fully extend antenna and adjust A7 for maximum volume on weak signal near 1400KC.

PUSHBUTTON ADJUSTMENTS

1. Pull out button to unlock tuner.
2. Tune manually to desired station signal.
3. Push in button to lock tuner.
4. Repeat above procedure for remaining buttons.

CHASSIS 2M

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Set volume control at maximum. Use insulated alignment tool.
Set tone control to "high" position.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
5.	.1MFD	High side to pin 7 (grid) of 6BE6 (V6). Low side to chassis.	455KC (400% Mod)	Extreme high frequency end of dial.	Across voice coil.	A8, A9, A10, A11	Adjust for maximum output. Attenuate generator to maintain 1.79 volts (1 watt) on output meter.
6.	Fig. 1	Thru dummy to antenna receptacle	1605KC	"	"	A12, A13, A14	Preset tuner cores so that 3/8 inch of core projects from coil form. Adjust A12, A13, & A14 for maximum output in order given.
7.	"	"	1300KC	With tuning knob move carriage 5/32 inch from position in step 2.	"	A15, A16, A17	Adjust for maximum output in order given.
8.	"	"	1605KC	Extreme high frequency end of dial.	"	A12, A13, A14	Adjust for maximum output in order given. Cement tuner core adjustments to prevent accidental movement.

With receiver installed in car, fully extend antenna and adjust A14 for maximum volume on weak signal near 1400KC.

CHASSIS BT-2

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Set tuner to "Manual" position either by moving carriage plate manually or by connecting control head to receiver and pressing "M" button.
If tuner cores are adjusted use alignment tool Motorola part #66A76278 or equivalent.
Set volume control at maximum.
Use insulated alignment tool.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
9.	.1MFD	High side to pin 7 (grid) of 6BE6 (V10) Low side to chassis.	455KC (400% Mod.)	Extreme high frequency end (cores out).	Across voice coil	A18, A19, A20, A21	Adjust for maximum output. Attenuate generator to maintain 1.79 volts (1 watt) on output meter.
10.	Fig. 1	Thru dummy to antenna receptacle.	1610KC	Extreme high frequency end. Set cores to project 1-1/8 inch from cans.	"	A22, A23, A24	Adjust for maximum output in order given.
11.	"	"	1425KC	Tune manually for a distance of 1-43/64 inches between tuner coil shield plate and tuner carriage plate.	"	A25, A26, A27	"

With receiver installed in car, fully extend antenna and adjust A24 for maximum volume on weak signal near 1400KC.

PUSHBUTTON ADJUSTMENTS

Turn receiver on and allow to warm up for a few minutes.
Collapse antenna until signal is weak.

Set buttons as follows:

1. Press Manual "M" button on control head.
2. Tune manually to desired station. (Note type of program , so station can be relocated).
3. Press desired button and wait until tuning mechanism completes operation.
4. Press automatic tuner reset button until "click" indicates button is locked.
5. Turn automatic tuner set-up knob until previously selected station (step 2) is heard. Check setting by tuning manually to same station.
6. Repeat steps 1 thru 5 for remaining push buttons.

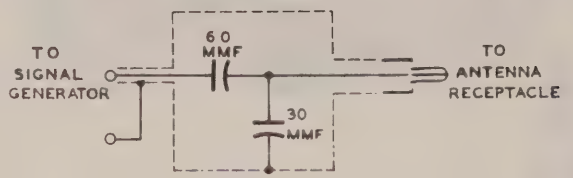
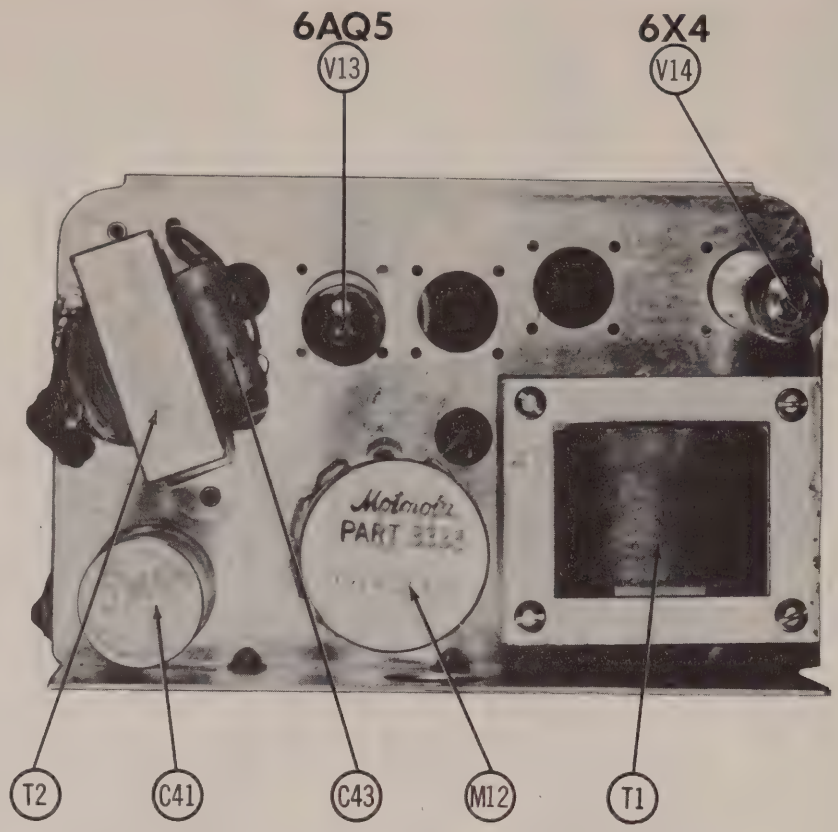
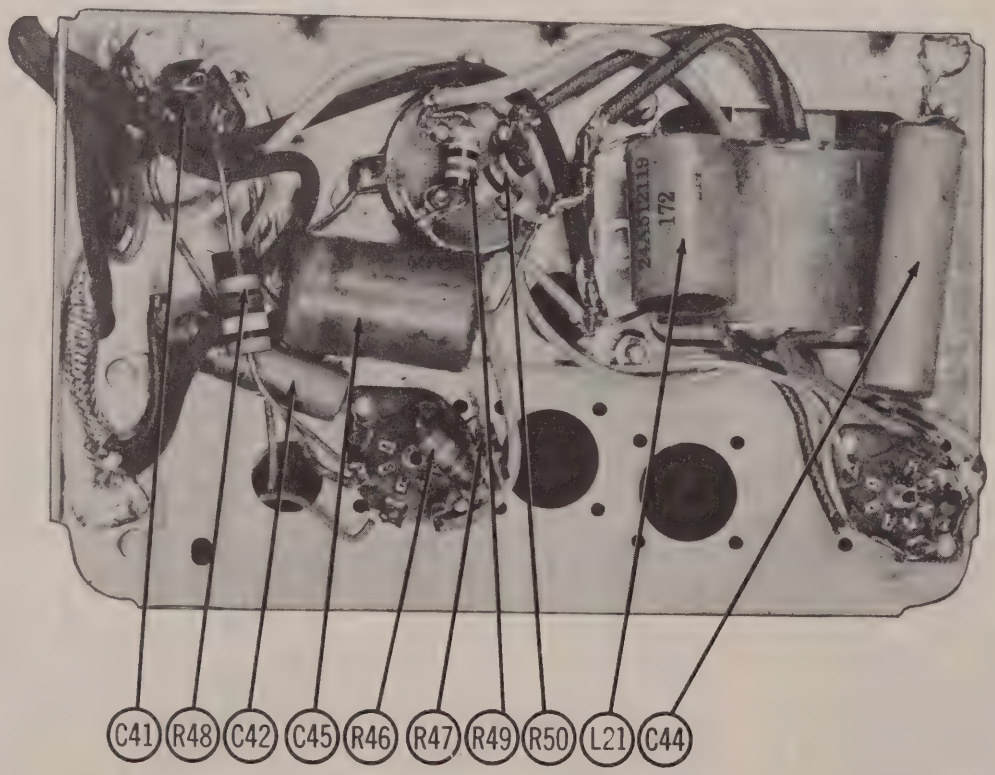


FIG. 1



TOP VIEW-CHASSIS P6-2



BOTTOM VIEW-CHASSIS P6-2

PARTS LIST AND DESCRIPTIONS CHASSIS P6-2

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RTMA BASE TYPE	INSTALLATION NOTES
		MOTOROLA PART No.	STANDARD REPLACEMENT		
V13	Audio Output	6AQ5	6AQ5	7BZ	
V14	Rectifier	6X4	6X4	5BS	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT	MOTOROLA PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C41A	■30	350	23A473015	AFH3-169		C131		FP331	TVL-3620	
B	▲30	300								
C	20	25								
C42	.02	400	8R12699	P488-02	DF-203	PTE4S2		PT412	4TM-S2	
C43	.006	400	8K71910	P688-006	D6-602	PTE6D6	GP2-333-602	PT626	6TM-D6	
C44	.02	1000	8K114137	P1088-02		PTE16S2		PT1612	MB-S2	
C45	.5	100	8K17028	P185-5		MP2P5		RF480	68P20	

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	MOTOROLA PART No.	IRC PART No.	
R46	220KΩ	½	6R6015	BTS-220K	
R47	270Ω	2	6R6432	BTS-270	
R48	3900Ω	2	6R476012	BTB-3900	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	MOTOROLA PART No.	IRC PART No.	
R49	56Ω	1-1/2	6R5614		
R50	56Ω	1-1/2	6R5614		

TRANSFORMER (VIBRATOR)

ITEM No.	RATING				REPLACEMENT DATA				
	PRI.	SEC. 1	SEC. 2	SEC. 3	MOTOROLA PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.
T1	6.3V @ 5.4A	464VCT .043ADC			25K512083		P-3068 ①	VT-1 ①	TV-16K ①

① Fabricate new mounting.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA					NOTES
	IMPEDANCE		DC RES.		MOTOROLA PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	
	PRI.	SEC.	PRI.	SEC.						
T2	7.3KΩ	3.2Ω	632Ω	.73Ω	25B502330	A-3878 ①	A-2931 ①	R0-13 ①	S-7X ①	① Drill one new mounting hole.

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA		NOTES
		PRI.	SEC.	MOTOROLA PART No.	MERIT PART No.	
L21	Hash Choke	0Ω		24A512119		

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			MOTOROLA PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M11	SFE	20A	65K4637	9K592646	307020	157020	SFE-20	HDJ-A

VIBRATOR

ITEM No.	TYPE	INPUT VOLTS	FREQUENCY	REPLACEMENT DATA				NOTES
				MOTOROLA PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	RADIART PART No.	
M12	INT	6.3 VDC	115	48B3333	5342	859	5342	

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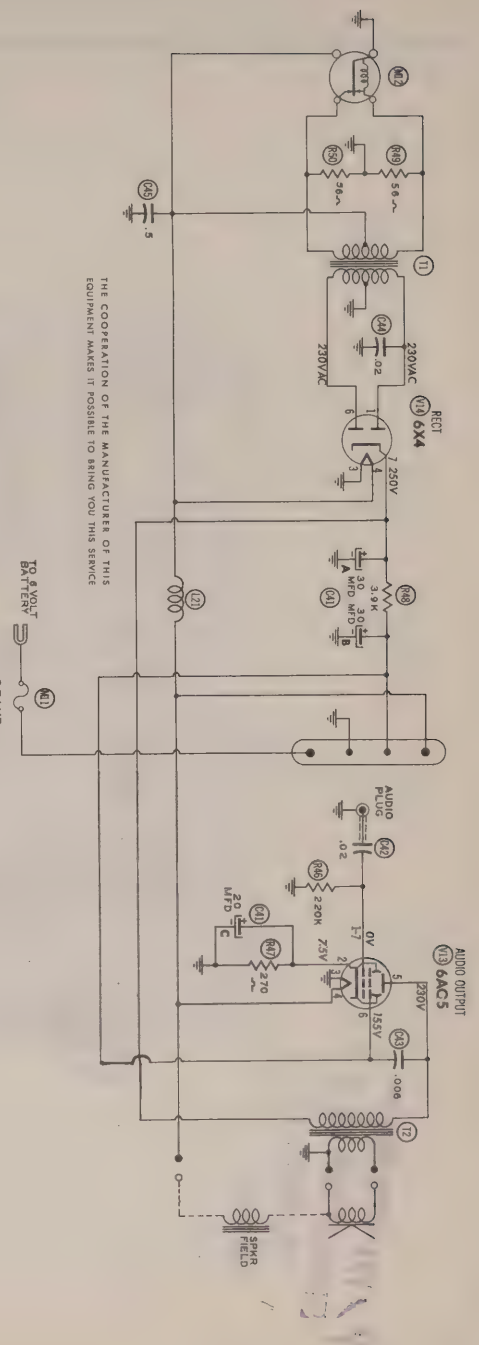
CHASSIS P6-2



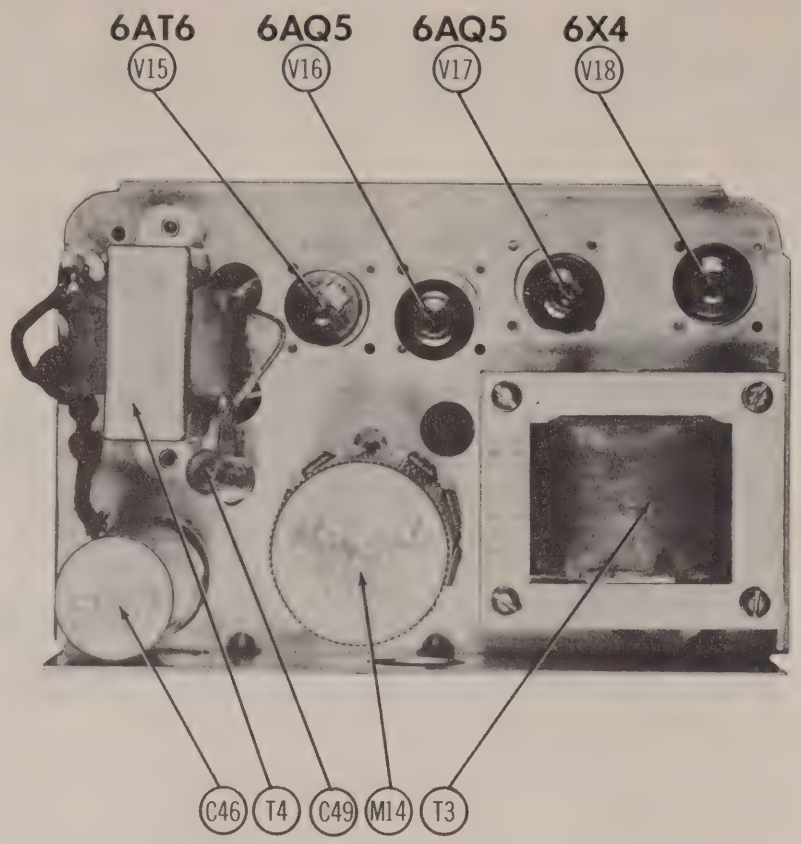
RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V13	6AQ5	220KΩ	270Ω	INF	0Ω	0Ω	INF	390Ω	250KΩ
V14	6X4	42KΩ	220KΩ	0Ω	0Ω	0Ω	165Ω	13.9KΩ	220KΩ

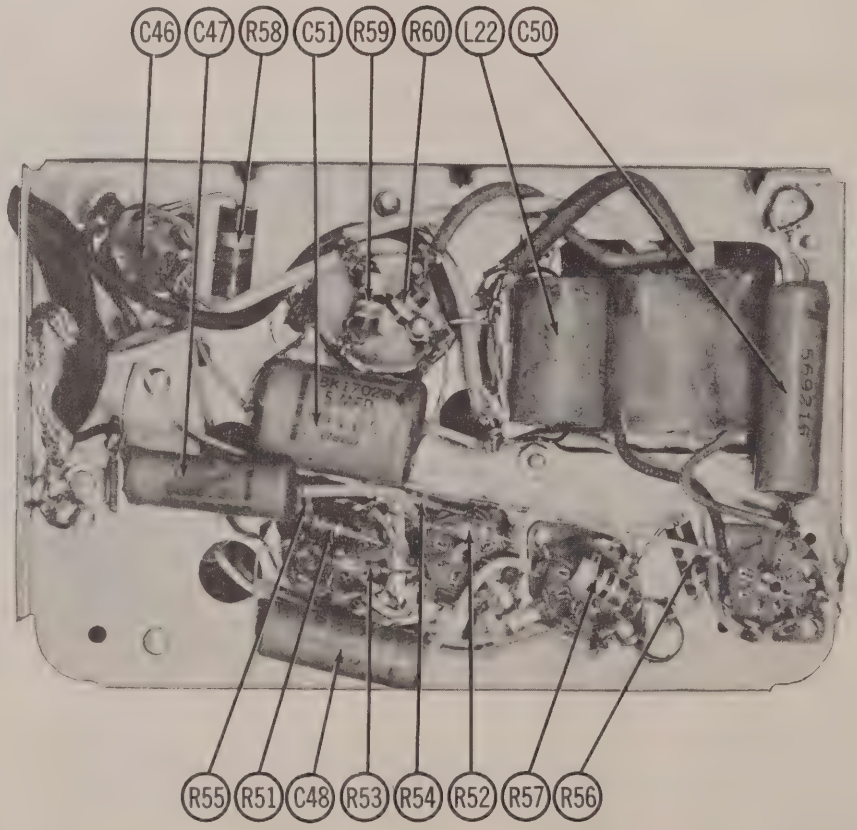
† MEASURED FROM PIN 7 OF V14
MEASUREMENTS TAKEN USING RT-2 TUNER CHASSIS.

1 - DC Voltage measurements are at 20,000 ohms per volt, AC Voltages measured at 1000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Battery voltage maintained at 6.3 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6 - Volume control at maximum, no signal applied for voltage measurements.

197-7



TOP VIEW-CHASSIS-P8-2



BOTTOM VIEW-CHASSIS P8-2

PARTS LIST AND DESCRIPTIONS CHASSIS P8-2

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RTMA BASE TYPE	INSTALLATION NOTES
		MOTOROLA PART No.	STANDARD REPLACEMENT		
V15	Phase Inverter	6AT6	6AT6	7BT	
V16	Audio Output	6AQ5	6AQ5	7BZ	
V17	Audio Output	6AQ5	6AQ5	7BZ	
V18	Rectifier	6X4	6X4	5BS	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	MOTOROLA PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C46A	■30	350	23A473015	AFH3-169		C131		FP331	TVL-3620	
B	▲30	300								
C	20	25								
C47	.02	400	8R12699	P488-02	DF-203	PTE4S2		PT412	4TM-S2	
C48	.02	400	8R12699	P488-02	DF-203	PTE4S2		PT412	4TM-S2	
C49	.003	1000	8R13165	P1088-003		PTE16D3		PT1623	MB-D3	
C50	.02	1000	8K114137	P1088-02		PTE16S2		PT1612	MB-S2	
C51	.5	100	8K17028	P185-5		MP2P5		RF480	68P20	

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	MOTOROLA PART No.	IRC PART No.	
R51	680Ω	1/2	6R6040	BTS-680	
R52	470KΩ	1/2	6R6377	BTS-470K	
R53	100KΩ	1/2	6R6075	BTS-100K	
R54	330KΩ	1/2	6R2096	BTS-330K	
R55	33KΩ	1/2	6R6410	BTS-33K	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	MOTOROLA PART No.	IRC PART No.	
R56	180Ω	1	6R6390	BTA-180	
R57	1 Meg	1/2	6R6004	BTS-1 Meg	
R58	1500Ω	2	6R2005	BTB-1500	
R59	56Ω	1/2	6R5614		
R60	56Ω	1/2	6R5614		

TRANSFORMER (VIBRATOR)

ITEM No.	RATING				REPLACEMENT DATA				
	PRI.	SEC. 1	SEC. 2	SEC. 3	MOTOROLA PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.
T3	6.3V @ 5.4A	464VCT .043ADC			25K512083		P-3068 ①	VT-1 ①	TV-16K ①

① Fabricate new mounting.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA					NOTES
	IMPEDANCE		DC RES.		MOTOROLA PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	
	PRI.	SEC.	PRI.	SEC.						
T4	7KΩCT	3.2Ω	500ΩCT	.42Ω	25B502331	A-2900	A-3823 ①	R0-301	S-5LX	① Drill one new mounting hole.

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA		NOTES
		PRI.	SEC.	MOTOROLA PART No.	MERIT PART No.	
L22	Hash Choke	0Ω		24A512119		

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			MOTOROLA PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M13	SFE	20A	65K4637	9K592237	307020	157020	SFE-20	HDJ-A

VIBRATOR

ITEM No.	TYPE	INPUT VOLTS	FREQUENCY	REPLACEMENT DATA				NOTES
				MOTOROLA PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	RADIART PART No.	
M14	INT	6.3 VDC	115	48B3333	5342	859	5342	

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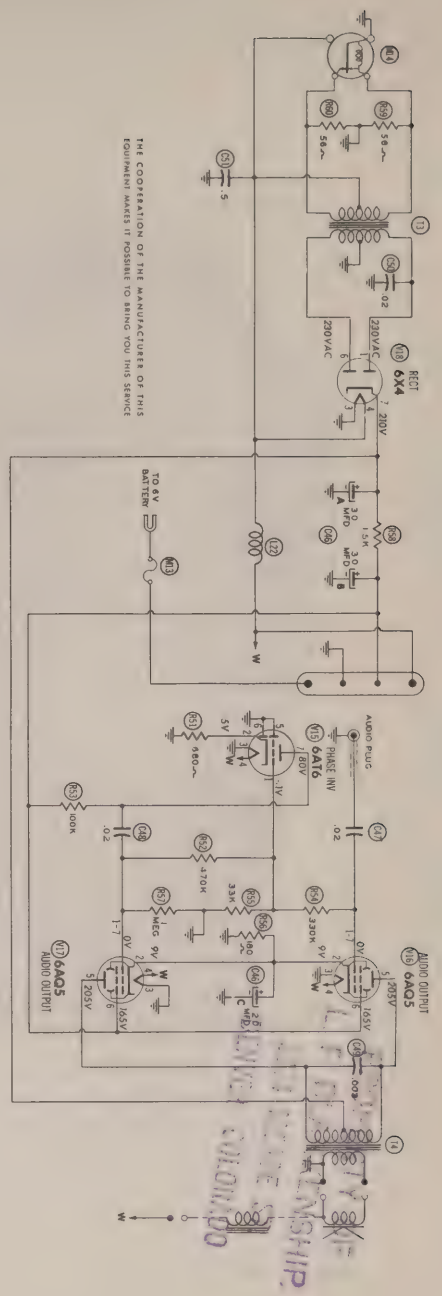
CHASSIS P8-2

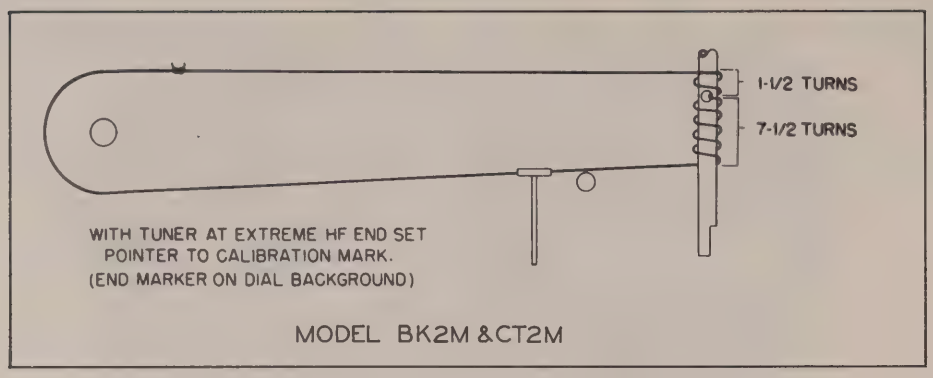
197-7

1 - DC Voltage measurements are at 20,000 ohms per volt, AC Voltages measured at 1000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Battery voltage maintained at 6.3 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6 - Volume control at maximum, no signal applied for voltage measurements.

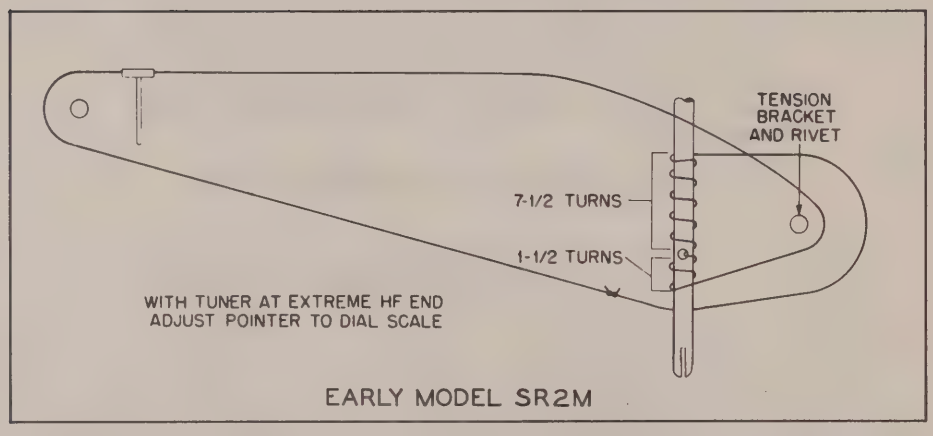

THE COOPERATION OF THE MANUFACTURER OF THIS EQUIPMENT MAKES IT POSSIBLE TO BRING YOU THIS SERVICE
RECT 6X4
230VAC
TO 6V BATTERY
PHASE INV 6AT6
AUDIO PLUG
AUDIO OUTPUT 6AQ5
AUDIO OUTPUT 6AQ5

MOTOROLA CHASSIS P8-2

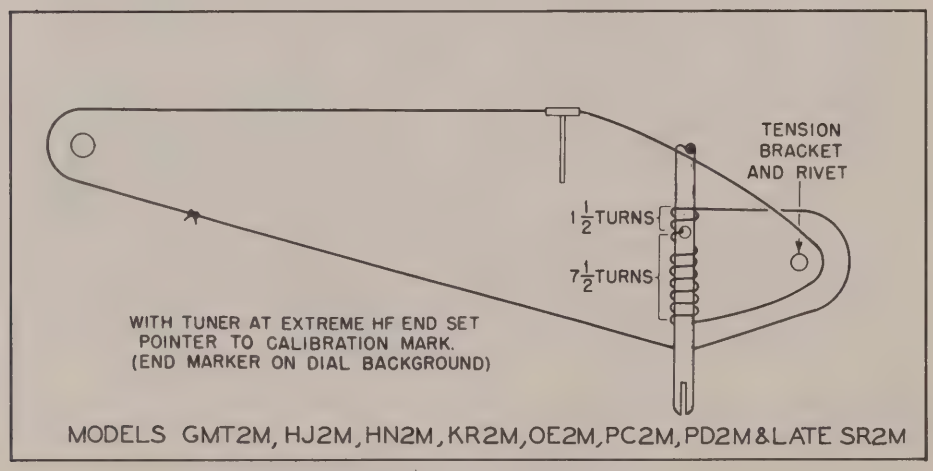
DIAL CORD STRINGING



MODEL BK2M &CT2M



EARLY MODEL SR2M

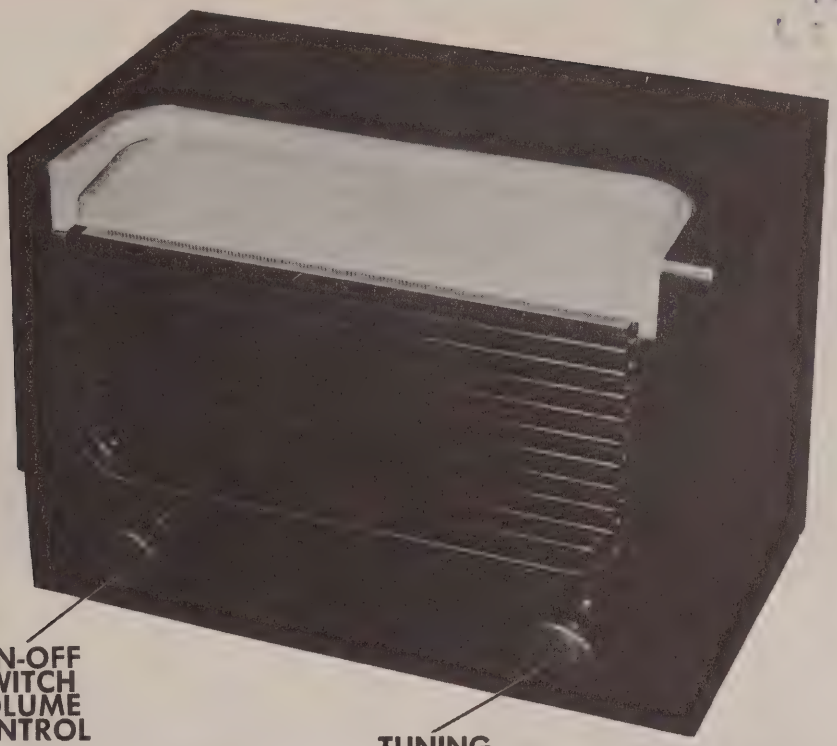


MODELS GMT2M, HJ2M, HN2M, KR2M, OE2M, PC2M, PD2M & LATE SR2M

RCA VICTOR MODELS
2X61 (Ch. RC-1080C), 2X62 (Ch. RC-1080D)

PROPERTY OF A
[illegible] MAINTENSHIP

RCA VICTOR MODELS
2X61 (Ch. RC-1080C), 2X62 (Ch. RC-1080D)



RCA VICTOR MODELS
2X61 (Ch. RC-1080C), 2X62 (Ch. RC-1080D)

RCA VICTOR MODEL 2X61

TRADE NAME	RCA Victor Models 2X61 (Ch. RC-1080C), 2X62 (Ch. RC-1080D)
MANUFACTURER	RCA Victor Div., Radio Corp. of America, Camden, N.J.
TYPE SET	AC/DC Operated AM Superheterodyne Receiver
TUBES (Six)	Types 12SK7 RF Amp., 12SA7 Conv., 12SK7 IF Amp., 12SQ7 Det.-AVC-AF Amp., 35L6GT Audio Output, 35Z5GT Rectifier
POWER SUPPLY	110-120 Volts AC/DC — RATING .25 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	540-1600 KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Turn tuning gang fully open and set pointer to index mark nearest to the left hand end of dial back plate. Use isolation transformer, if available. If not, connect a .1MFD capacitor in series with low side of signal generator and B-. Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to pin 4 (grid) of 12SK7 (V3). Low side to B-.	455KC (400~Mod.)	Quiet point near 600KC	Across voice coil	A1, A2	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
2.	"	High side to pin 8 (grid) of 12SA7 (V2). Low side to B-.	"	"	"	A3, A4	"
3.	100MMF	High side to external antenna terminal. Low side to B-.	1620 KC	Tuning gang fully open.	"	A5, A6 A7	Adjust in order given for maximum output.
4.	"	"	600 KC	600KC	"	A8	Shunt the RF (front) section of tuning gang with a 22KΩ resistor. Adjust for maximum output while rocking tuning gang.
5.	"	"	"	"	"	A9	Remove the 22KΩ resistor. Adjust for maximum output.
6.	Repeat steps 3, 4, and 5.						

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PARTS LIST AND DESCRIPTIONS

RCA VICTOR
MODEL 2X61 (Ch. RC-1080C)

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RTMA BASE TYPE	INSTALLATION NOTES
		RCA Victor PART No.	STANDARD REPLACEMENT		
V1	RF Amplifier	12SK7	12SK7	8N	
V2	Converter	12SA7	12SA7	8R	
V3	IF Amplifier	12SK7	12SK7	8N	
V4	Det.-AVC-AF Amp.	12SQ7	12SQ7	8Q	
V5	Audio Output	35L6GT	35L6GT	7S	
V6	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	RCA Victor PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C1A	80	150	74662	PRS150/80-40-20		EDL8415		3N538	TVA-3455	Red
B	50	150								Green
C2	47		39042	SI47	D6-470		GP1K-470	UC-5447	5GA-Q47	
C3	56		71924		TCZ-56		NP0L-560			
C4	.1	400	73551	P488-1	DF-104	PTE4P1		PT401	4TM-P1	
C5	150		73501	SI150	D6-151	TM5T15	GP2K-151	UC-5315	5GA-T15	
C6	.022	200	73562	P488-022	DF-203	PTE4S22		PT4125	4TM-S22	
C7	150		73501	SI150	D6-151	TM5T15	GP2K-151	UC-5315	5GA-T15	
C8	.22	200	73794	P488-22		PTE4P22		PT4025	2TM-P22	
C9	.0022	600	73595	P688-0022	D6-222	PTE6D22	GP2-333-222	PT6222	6TM-D22	
C10	.015	200	73797	P488-015		PTE6S15		TP411	6TM-S15	
C11	.047	400	73553	P488-047	DF-503	PTE4S47		PT4147	4TM-S47	
C12	.047	400	73553	P488-047	DF-503	PTE4S47		PT4147	4TM-S47	
C13	.1	400	73551	P488-1	DF-104	PTE4P1		PT401	4TM-P1	
C14	4700		73473	BPD-0047	DD-502	TM5D5	811-005	DC-525	5HK-D47	

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	RCA Victor PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	
R1A	500KΩ	½	38410	Q13-133	AG-60-Z	B-60-S	U-48	Volume
B	Shaft		Not Req.	Not Req.	FS-3	Not Req.	Not Req.	Attach to R1A
C	Switch		Not Req.	76-1	SWB	Not Req.	US-26	Attach to R1A

RESISTORS

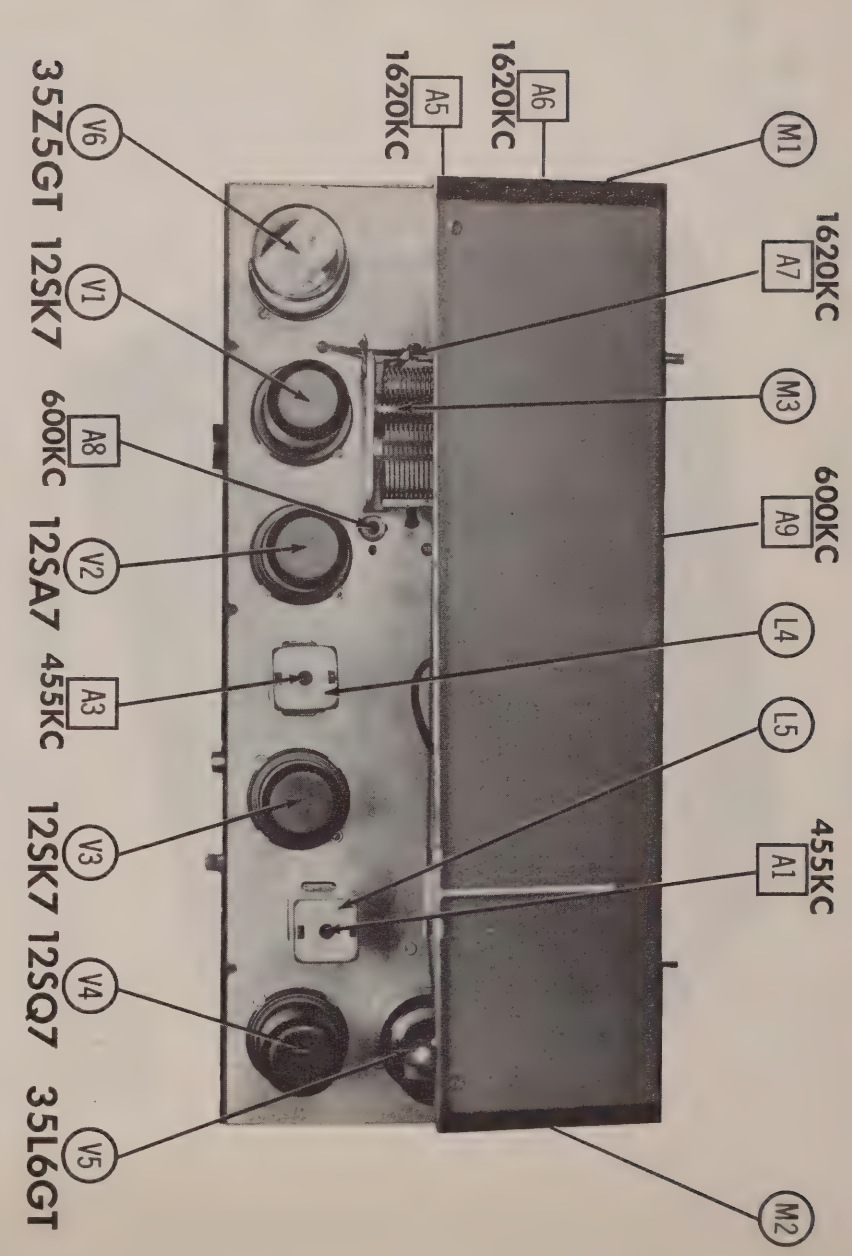
ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	RCA Victor PART No.	IRC PART No.	
R2	180Ω	½	503118	BTS-180	
R3	12KΩ	½	503312	BTS-12K	
R4	22KΩ	½	503322	BTS-22K	
R5	2.2Meg	½	503522	BTS-2.2Meg	
R6	120Ω	½	503112	BTS-120	
R7	56KΩ	½	503356	BTS-56K	
R8	4.7Meg	½	503547	BTS-4.7Meg	
R9	220KΩ	½	503422	BTS-220K	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	RCA Victor PART No.	IRC PART No.	
R10	100KΩ	½	503410	BTS-100K	
R11	470KΩ	½	503447	BTS-470K	
R12	120Ω	½	503112	BTS-120	
R13	1200Ω	1	513212	BTA-1200	
R14	33Ω	1	514033		
R15	270Ω	½	503127	BTS-270	
R16	220KΩ	½	503422	BTS-220K	

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA					NOTES
	IMPEDANCE		DC RES.		RCA Victor PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	
	PRI.	SEC.	PRI.	SEC.						
T1	3.3KΩ	3.3Ω	260Ω tap ② 14Ω	.62Ω	73976	A-3336 ①	A-3031 ①	RO-3 ①		① Bend mounting tabs down, file out slots, mount on original mounting bracket.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	RCA Victor PART No.	JENSEN PART No.	QUAM PART No.	
SP1	4"	PM	3.2Ω	76391	ST-113 Mod. P4-X	4A07	

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA		NOTES
		PRI.	SEC.	RCA Victor PART No.	MERIT PART No.	
L1	Loop Ant.	0Ω	1.5Ω	77143 *		(Includes back cover)
L2	RF Coil	30Ω	8Ω	73677		Sec. tapped @ 2.6Ω
L3	Osc. Coil	.6Ω	8.5Ω	74693		
L4	Input IF	16Ω	11Ω	73036	BC-352	
L5	Output IF	14.5Ω	14.5Ω	73037	BC-355	

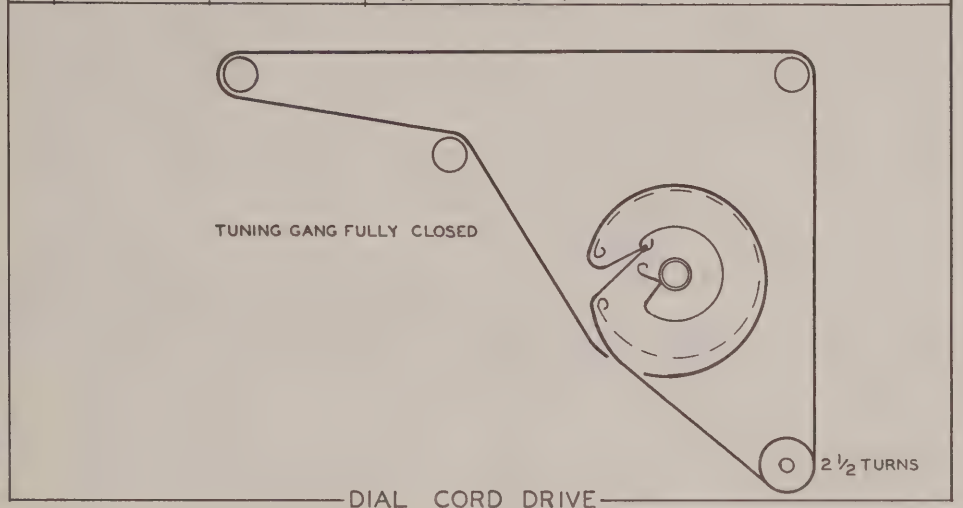
* RCA Model 2X62 used part #77144 in this application.

DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		NOTES
					RCA Victor PART No.		
M1	Bayonet	3.2	.15	White	71116		Type #1490
M2	Bayonet	3.2	.15	White	71116		Type #1490

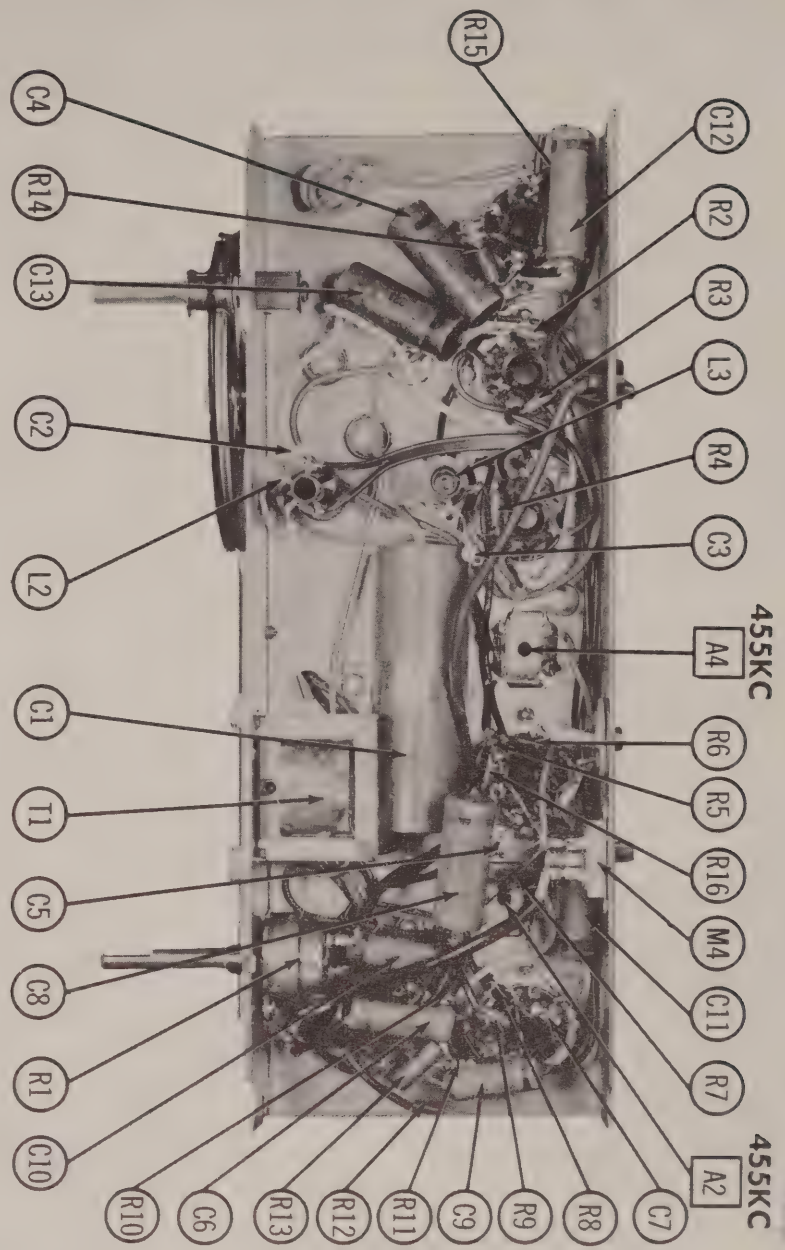
MISCELLANEOUS

ITEM No.	PART NAME	RCA Victor PART No.	NOTES
M3	Tuning Capacitor	77145	34-440MMF, 20-240MMF, 20-108MMF (With Drive Drum)
M4	Switch	33634	Radio-Phono Selector
	Cabinet	Y2445	Maroon, Plastic, Model 2X61 (With Escutcheon, 77241)
	Cabinet	Y2446	Ivory, Plastic, Model 2X62 (With Escutcheon, 77241)
	Dial	77146	Polystyrene Scale
	Pointer	77142	
	Knob	74931	Maroon, Model 2X61 (2 Used)
	Knob	72645	Ivory, Model 2X62 (2Used)



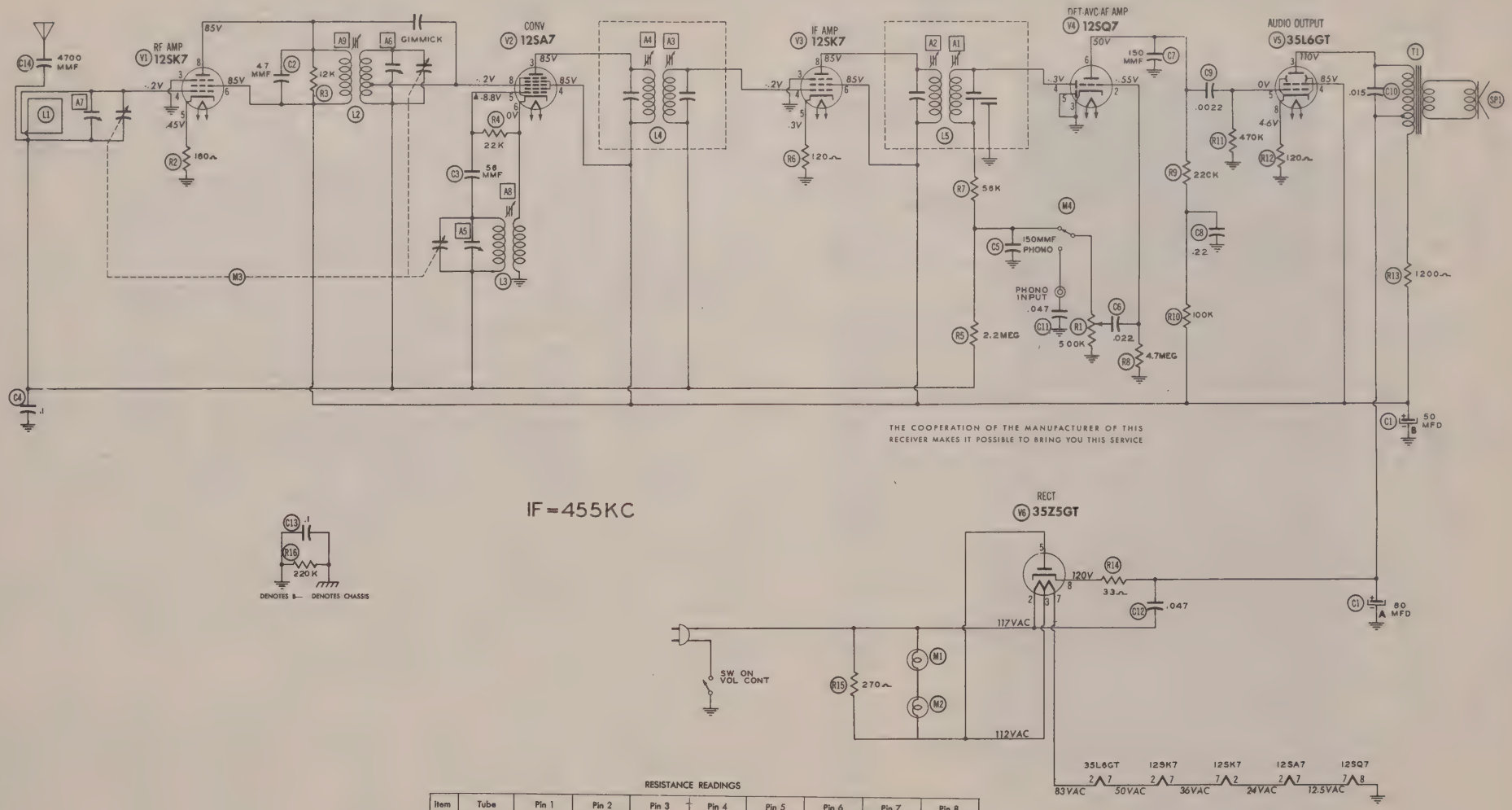
DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW



PROPERTY OF RCA VICTOR MODEL 2X61 (Ch. RC-1080C)

RCA VICTOR MODEL 2X61 (Ch. RC-1080C)



RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	12SK7	220KΩ	25Ω	0Ω	2.7Meg	180Ω	†1.2KΩ	37Ω	†1.2KΩ
V 2	12SA7	220KΩ	25Ω	†1.2KΩ	†1.2KΩ	22KΩ	.6Ω	12Ω	2.7Meg
V 3	12SK7	220KΩ	50Ω	0Ω	2.7Meg	120Ω	†1.2KΩ	37Ω	†1.2KΩ
V 4	12SQ7	220KΩ	4.7Meg	0Ω	556KΩ	0Ω	†321KΩ	12Ω	0Ω
V 5	35L6GT	INF	83Ω	†279Ω	†1.2KΩ	470KΩ	†47Ω	50Ω	120Ω
V 6	35Z5GT	INF	118Ω	116Ω	INF	118Ω	†33Ω	83Ω	250KΩ

ALL MEASUREMENTS TAKEN WITH FUNCTION SELECTOR SWITCH IN "RADIO" POSITION
▲ TAKEN WITH VACUUM TUBE VOLTMETER
† MEASURED FROM PIN 8 OF V6

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197-8

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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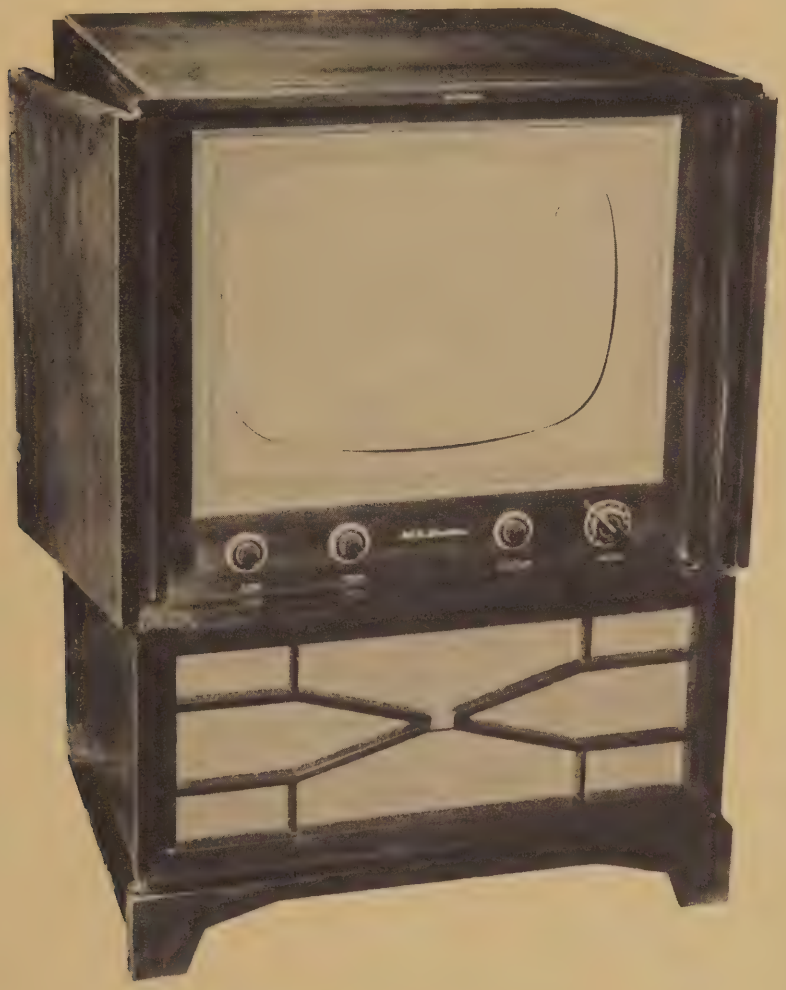

MODEL 21T174DE

RCA VICTOR MODELS 21T159DE, 21T174DE, 21T178DE, 21T179DE (Ch. KCS68F)

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RCA VICTOR MODELS 21T159DE, 21T174DE, 21T178DE, 21T179DE (Ch. KCS68F)

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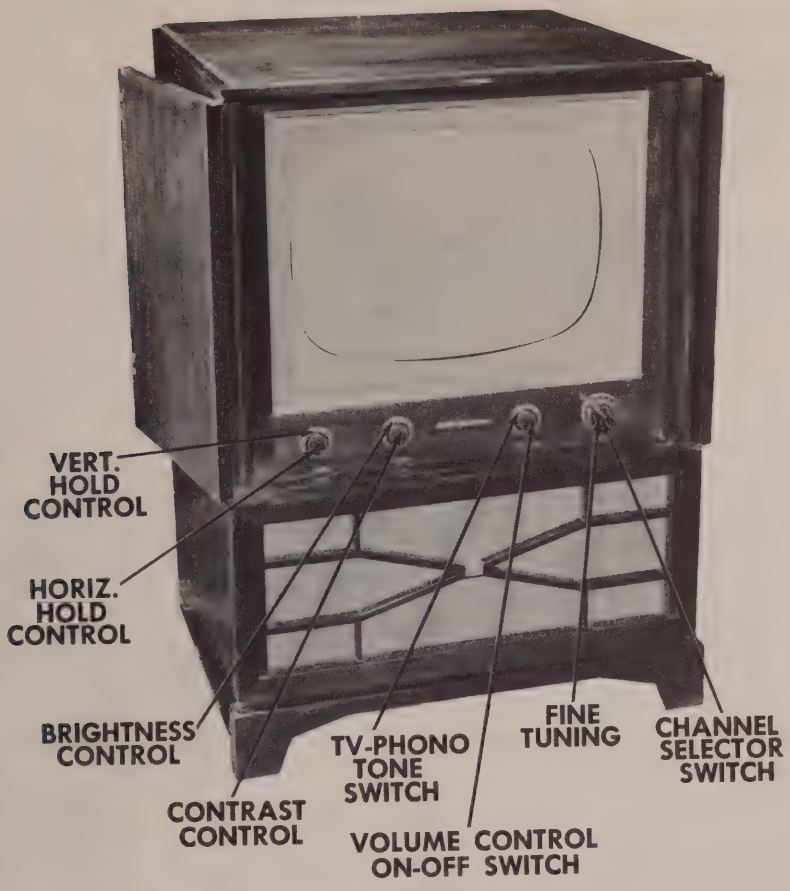

RCA VICTOR MODELS 21T159DE, 21T174DE, 21T178DE, 21T179DE (Ch. KCS68F)

RCA VICTOR 21T174DE

TRADE NAME	RCA Victor Models 21T159DE, 21T174DE, 21T178DE, 21T179DE (Ch. KCS68F)
MANUFACTURER	RCA Victor Div., Radio Corp. of America, Camden, New Jersey
TYPE SET	Television Receiver
TUBES	Twenty-Five

POWER SUPPLY 110-120 Volts AC-60 Cycle RATING 2.7 Amp. 117 Volts AC
TUNING RANGE—Channels 2 thru 13, Video IF 45.75MC Sound IF 41.25MC (Intercarrier)

INDEX

Alignment Instructions 6, 7, 8
Disassembly Instructions 17
Horizontal Sweep Circuit Adjustments 18
Parts List and Descriptions ..... 13 thru 16
Photographs
- Cabinet - Rear View 18
- Capacitor and Alignment Identification 4, 9
- Chassis - Top View 3
- High Voltage Compartment 12
- RF Tuner 8, 11
- Resistor and Inductor Identification 19, 20

Resistance Measurements 10
Schematic 2
Servicing in the Field 17
Tube Failure Check Chart 5
Tube Placement Chart (Bottom View) 10
Tube Placement Chart (Top View) 5

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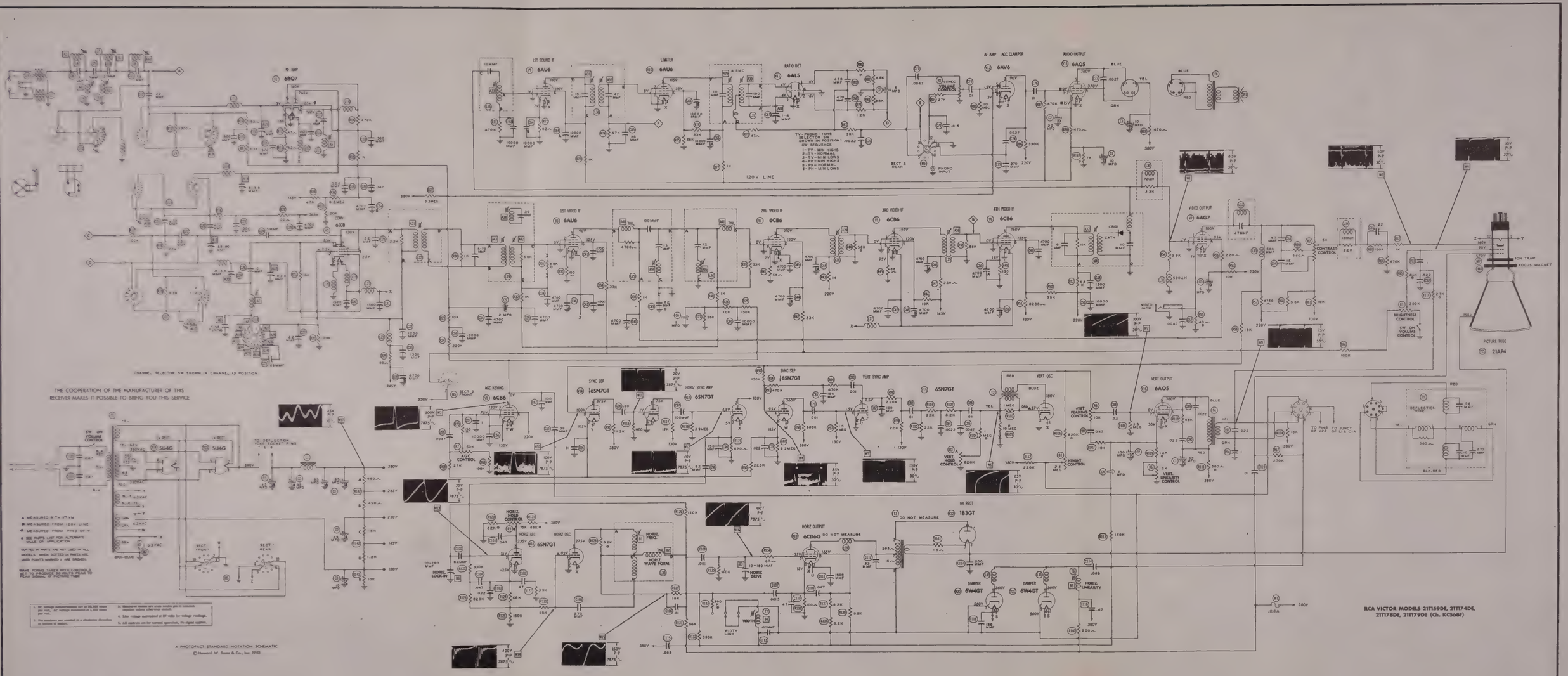

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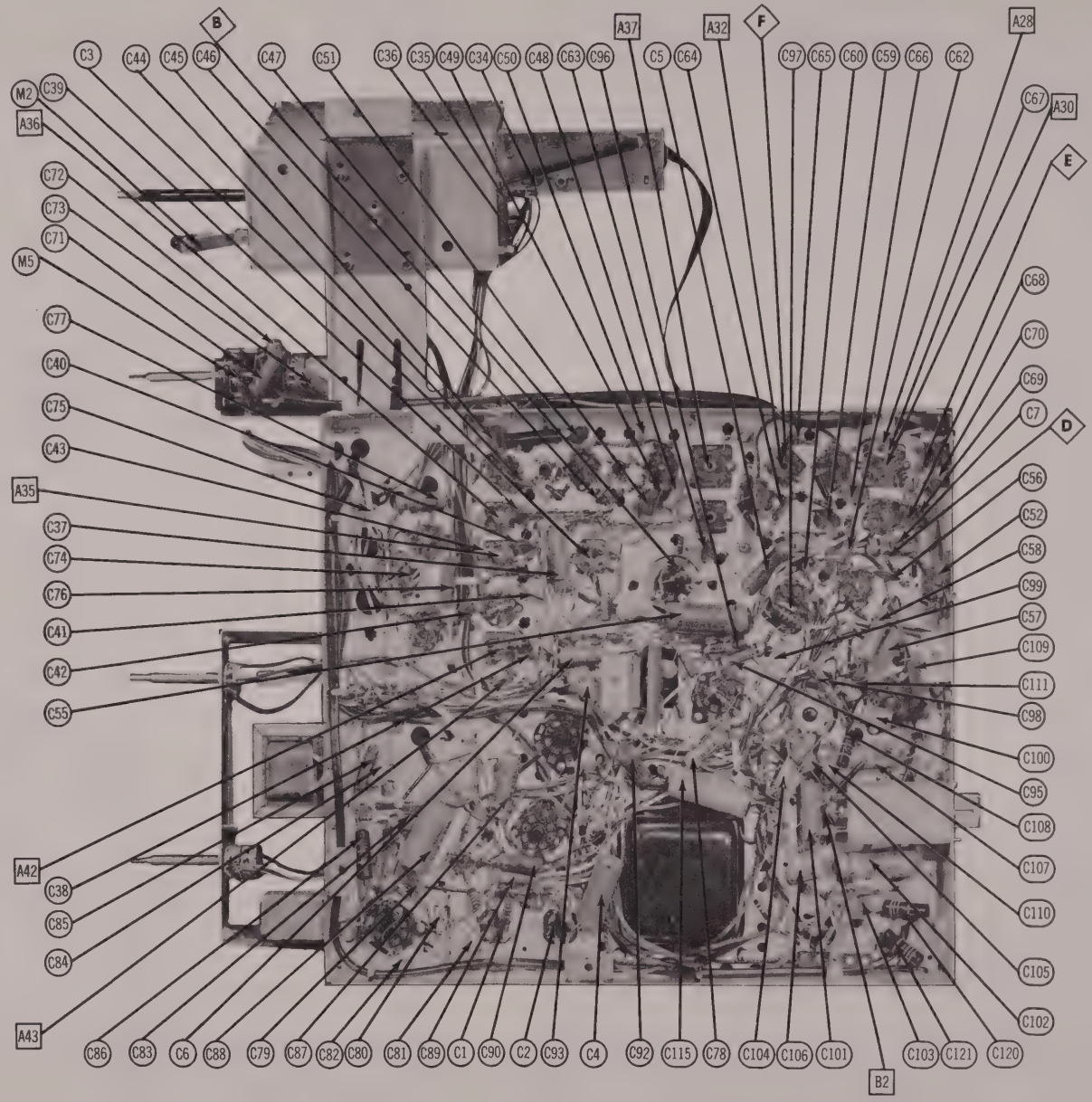
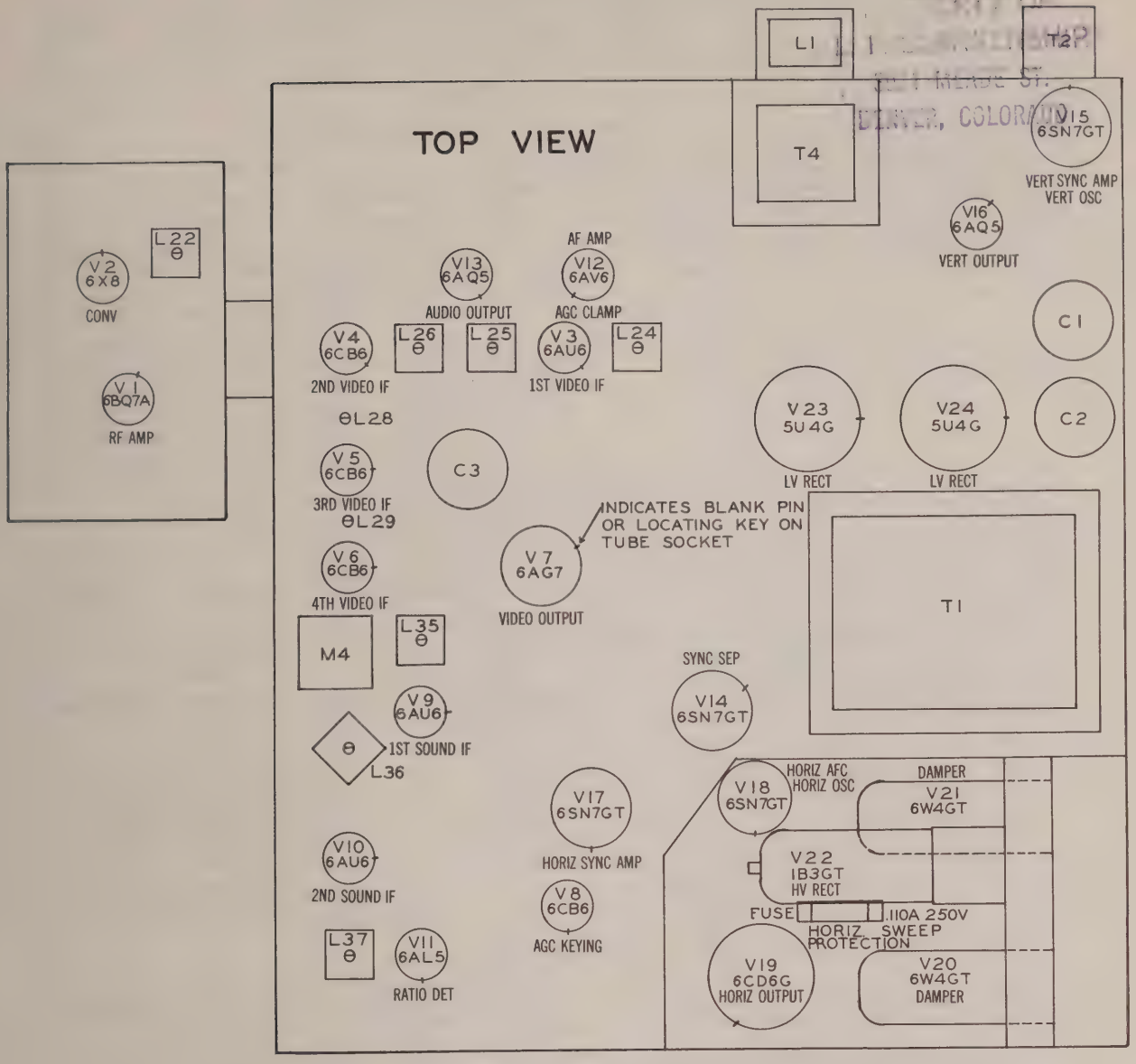
CHASSIS TOP VIEW



CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION

TUBE PLACEMENT CHART



TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No raster, no sound-V23, V24

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster-V2, V3, V4, V5, V6
No pic, no sound, has snow-V1, V2, V3
No pic, has sound, has raster-V7, V25
Has pic, no sound-V9, V10, V11, V12, V13
Overloaded picture-V8, V12

SYNC FAILURE
No vert. sync.-V14, V15
No horiz. sync.- V17, V18
No vert. or horiz. sync-V14

SWEEP FAILURE
No raster, has sound-V18, V19, V20, V21, V22, V25 Fuse (M1)
No vertical deflection-V15, V16
Poor vert. linearity or foldover-V15, V16
Poor horiz. linearity or foldover-V18, V19, V20, V21
Narrow picture-V18, V19, V20, V21, V22, V23, V24
Vert. off freq-V15
Horiz. off freq-V17, V18

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The high voltage lead should be securely taped and kept away from the chassis. Do not remove the horizontal oscillator tube to disable the high voltage.

ANTENNA MATCHING UNIT ALIGNMENT

The antenna matching unit is accurately aligned at the factory. Adjustment of the unit should not be attemped unless proper alignment equipment is available since misalignment may cause considerable loss of signal on Channel 2.
Disconnect the lead from the FM Trap (L8) to the channel switch wafer and connect Point ◇A◇ through a .001MFD capacitor to pin 1 (grid) of 6CB6 (V4). Replace the cover on the matching unit while making all adjustments.
Remove the 1st. Video IF tube (V3).
Connect a 1000Ω potentiometer across the terminals of a 7.5 volt battery capable of withstanding appreciable current drain.
Connect the positive lead to chassis and the potentiometer arm to the ungrounded side of R27. Adjust the potentiometer to produce approximately -6 volts at the junction of R26 and R27 with respect to chassis.
Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Two 130Ω Carbon Resistors	Across antenna terminals with 130Ω in each lead.	Not used.	45.75MC (400∿Mod)	Any	Vert. amp to point ◇B◇ Low side to chassis.	A1	Set oscilloscope gain to maximum and adjust A1 for MINIMUM 400∿ response.
2.	"	"	"	41.25MC (400∿Mod)	"	"	A2	Adjust for MINIMUM 400∿ response.
3.	"	"	50MC (10MC Swp)	50MC 52MC 53MC	"	Vert. amp thru crystal probe (Fig. 1) to point ◇A◇ Low side to chassis.	A3, A4	Remove the .001MFD capacitor (see instructions above) from point ◇A◇ and connect a 300Ω resistor from short leads. Adjust A3 and A4 to obtain response curve as in Fig. 2. Repeat steps 1, 2, and 3 until no further improvement is made. Remove the 300Ω resistor and the crystal probe. Restore the connection between L8 and the channel switch. Replace V3.

RF AND OSCILLATOR ALIGNMENT

A RF unit which is operative and requires only minor touch-up adjustments will require no pre-setting of adjustments. Where complete Alignment is necessary pre-set all adjustments to the approximate center of their range with the following exceptions: Set A15 so that the screw head projects approximately 3/8 inch above chassis. Set A13 1/4 turn from tight. Do not change any of the adjustments in the antenna matching unit.
Disconnect the link from terminals ◇A◇ and ◇B◇ of L24 and terminate the link with a 39Ω carbon resistor.
To insure zero AGC bias during RF alignment short terminal 3 (green lead) of the RF unit terminal board to chassis.
During Step 4 the sweep generator connection is made as follows: Remove V1 from its socket and twist one end of a small piece of wire around pin 7.
Replace V1 and connect the sweep generator to the free end of the wire through a .0015 MFD capacitor.
Oscillator Alignment as outlined below requires the use of a heterodyne frequency meter.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
4.	.0015MFD	High side to pin 7 (grid) of 6BQ7 (V1). Low side to chassis.	Not used.	43.5MC (400∿Mod)	2	Vert. amp to point ◇C◇ Low side to chassis.	A5	Adjust for MINIMUM 400∿ indication on scope Remove wire from pin 7 of V1.
5.		RF input of frequency meter to small piece of insulated wire inserted in hole provided for adjustment of A13 in tuner unit.	"	Freq. Meter 227MC	8	Not used.	A6	Turn fine tuning control 30 degrees clockwise from the center of its range for step 5 and other steps while adjusting the oscillator frequency. Adjust A6 to obtain audio beat on frequency meter. If range of A6 permits proper adjustment as above proceed with step 7; if not, proceed with step 6.
6.		"	"	Freq. Meter 257MC 251MC 245MC 239MC 233MC 227MC	 13 12 11 10 9 8	"	A7 A8 A9 A10 A11 A12 A6	Adjust in order given for audio frequency beat on frequency meter, then repeat adjustments for channels 13 and 8.
7.	Two 130Ω Carbon Resistors	Across antenna terminals with 130Ω in each lead.	183MC (10MC Swp)	181.25MC 185.75MC	8	Vert. amp to point ◇C◇ Low side to chassis.	A12, A13, A14, A15	Preset A21 for maximum inductance. Adjust A12 thru A15 for response similar to Fig. 3.
8.		Connect frequency meter as in step 5.	Not used.	Freq. Meter 129MC	6	Not Used.	A16	Adjust for audio frequency beat on frequency meter.
9.	Two 130Ω Carbon Resistors	Across antenna terminals with 130Ω in each lead.	85MC (10MC Swp)	83.25MC 87.75MC	"	Vert. amp. to point ◇C◇ Low side to chassis.	A17, A18, A19	Adjust for response similar to Fig. 3.
10.	Connect DC probe of VTVM to point ◇C◇ common to chassis and adjust A20 for -3.5Volts or for maximum if less than -3.5 Volts.							
11.	Repeat step 9, readjusting A17, A18 and A19 if necessary.							
12.	Repeat step 5 and step 7 readjusting A12, A13, A14 and A15 if necessary. If A12 is readjusted, recheck voltage at point ◇C◇ as in step 10.							
13.		Connect frequency meter as in step 5.	Not used.	Freq. Meter 257MC	13	Not used.	A7	Adjust A7 for audio beat on frequency meter. Slightly over shoot adjustment then adjust A6 to again obtain beat.
14.	Two 130Ω Carbon Resistors	Across antenna terminals with 130Ω in each lead.	213MC (10MC Swp)	211.25MC 215.75MC	13	Vert. amp to point ◇C◇ Low side to chassis.		Check for response similar to Fig. 3. with markers above 80%, also check voltage at point ◇C◇ If markers fall below 80% on any channel switch to channel 8 and make compromise adjustments of A12, A13, A14, and A15.
			207MC (10MC Swp)	205.25MC 209.75MC	12			
			201MC (10MC Swp)	199.25MC 203.75MC	11			
			195MC (10MC Swp)	193.25MC 197.75MC	10			
			189MC (10MC Swp)	187.25MC 191.75MC	9			
			183MC (10MC Swp)	181.25MC 185.75MC	8			
			177MC (10MC Swp)	175.25MC 179.75MC	7			
15.		Connect frequency meter as in step 5.	Not used.	Freq. Meter 227MC	8	Not used.		Check for audio beat on frequency meter. If necessary readjust A6, overshooting the adjustment and correcting with A7 to obtain audio beat.
16.		"	"	129MC	6	"	A16	Adjust for audio beat on frequency meter.

ALIGNMENT INSTRUCTIONS (CONT.)

RF AND OSCILLATOR ALIGNMENT (CONT)

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
17.	Two 130Ω Carbon Resistors	Across antenna terminals with 130Ω in each lead.	85MC (10MC Swp)	83.25MC 87.75MC	"	Vert. amp to point (C) Low side to chassis.		Check for response similar to Fig. 3. If necessary, readjust A17, A18 and A19.
18.	"	"	57MC (10MC Swp)	55.25MC 59.75MC	2	"	A21	Adjust A21 clockwise to a point where further adjustment causes no change in channel 2 response.
19.	"	"	85MC (10MC Swp)	83.25MC 87.75MC	6	"		Check voltage at point (C) and check for response curve similar to Fig. 3. If excessive tilt in same direction occurs on channels 2, 3, and 4. Adjust A15 on channel 2 to overshoot the correction of tilt then adjust A19 on channel 6 for maximum amplitude of curve between markers.
			79MC (10MC Swp)	77.25MC 81.75MC	5			
			69MC (10MC Swp)	67.25MC 71.75MC	4			
			63MC (10MC Swp)	61.25MC 65.75MC	3			
			57MC (10MC Swp)	55.25MC 59.75MC	2			
20.		Connect frequency meter as in step 5.	Not used.	Freq.Meter 257MC	13		A6	Adjust for audio beat on frequency meter Disconnect the 39Ω resistor from the link and reconnect link to terminals (A) and (B) of L24.
				251MC	12		A8	
				245MC	11		A9	
				239MC	10		A10	
				233MC	9		A11	
				227MC	8		A22	
				221MC	7		A23	
				129MC	6		A16	
				123MC	5		A24	
				113MC	4		A25	
				107MC	3		A26	
				101MC	2		A27	

RATIO DETECTOR ALIGNMENT

Connect an oscilloscope across speaker voice coil and turn volume control for maximum output. Preset A28 to minimum capacity.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
21.	Direct	High side to pin 1 (grid) of 6AU6 (V10). Low side to chassis.	4.5MC (400~Mod)	Any not used locally	DC probe to point (D). Common to chassis.	A29	Adjust for maximum deflection. Attenuate generator to maintain 10 volts at VTVM.
22.	"	"	"	"	DC probe to point (E). Common to chassis.	A30	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting. Then readjust A30 to nearest point of MINIMUM 400~ indication on scope.
23.	"	"	"	"	DC probe to point (D). Common to chassis.		Readjust A29 for maximum deflection. Readjust A30 for MINIMUM 400~ indication on scope. Attenuate generator to maintain 10 volts at VTVM.
24.	"	"	"	"	DC probe to point (E). Common to chassis.		Check voltage at point (E). If in excess of ± 1.5 volts adjust A28 for zero DC at VTVM. Adjust A30 for MINIMUM 400~ indication on scope. Repeat adjustments of A28 and A30 in this manner until voltage at point (E) is less than ± 1.5 volts when A30 is set for minimum output on scope.
25.	"	"	"	"	DC probe to point (D). Common to chassis.		Adjust A29 for maximum deflection. Attenuate generator to maintain 10 volts at VTVM.
26.	Repeat Steps 24 and 25 for the following simultaneous conditions: 1. Voltage at point (E) less than ± 1.5 volts. 2. A29 set for maximum at point (D). Maximum limited to 10 volts. 3. A30 set for MINIMUM 400~ indication on scope.						

SOUND IF ALIGNMENT

Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
27.	Direct	High side to pin 1 (grid) of 6AU6 (V9). Low side to chassis.	4.5MC (1MC Swp)	4.5MC	Any not used locally	Vert. Amp. thru 10KΩ to point (F). Low side to chassis.	A31, A32	Adjust for curve of maximum amplitude and symmetry as in Fig. 4. Attenuate generator to maintain 2 volts peak to peak on scope.
28.	100Ω Carbon Resistor	High side to Terminal (C) of L35. Low side to chassis.	Not used	4.5MC (Unmod.)	"	Use VTVM. DC probe thru detector (Fig. 1) to pin 8 (plate) of 6AG7 (V7). Common to chassis.	A33	Short pin 1 (grid) of 6CB6 (V9) to chassis. Adjust A33 for MINIMUM deflection on VTVM. Remove short from pin 1 of V9.

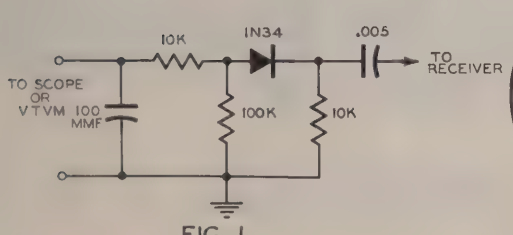


FIG. 1

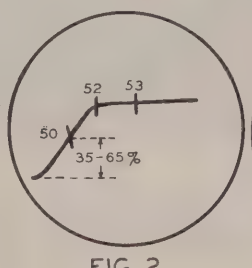


FIG. 2

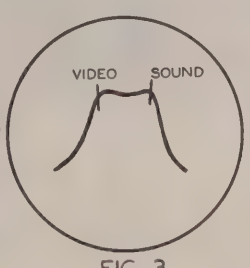


FIG. 3

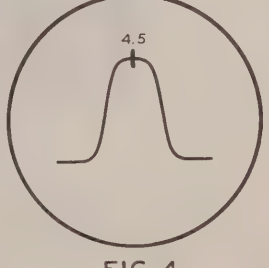


FIG. 4

ALIGNMENT INSTRUCTIONS (CONT.)

VIDEO IF ALIGNMENT

Connect the bias supply as under Antenna Matching Unit Alignment. Set potentiometer to obtain -1 volt at potentiometer arm.
Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
29.	.001MFD	High side to Terminal Ⓐ of L22. Low side to Terminal Ⓑ of L22.	Not used	39.25MC	Any not used locally	Use VTVM. DC probe to point Ⓑ. Common to chassis.	A34	Adjust for MINIMUM deflection. Attenuate generator to maintain 1 volt at VTVM.
30.	"	"	"	41.25MC	"	"	A35	"
31.	"	"	"	47.25MC	"	"	A36	"
32.	"	"	"	43.7MC	"	"	A37	Adjust for maximum deflection.
33.	"	"	"	45.5MC	"	"	A38	"
34.	"	"	"	41.8MC	"	"	A39	"
35.	"	High side to pin 1 (grid) of 6AU6 (V3). Low side to chassis.	43MC (10MC Swp)	42.0MC 45.0MC 45.75MC 46.5MC	"	Vert. Amp. of scope to point Ⓑ. Low side to chassis.	A40, A41	Connect 330Ω carbon resistors across R44, R48 and from Terminal Ⓐ to Terminal Ⓕ (primary) of M4. Adjust for curve of maximum amplitude similar to Fig. 5. Attenuate generator to maintain .5 volt peak to peak on scope.
36.	Direct	High side to point Ⓖ using very short leads. Low side to chassis.	"	41.25MC 41.9MC 44.5MC 45.75MC	4	Vert. Amp. thru detector (Fig. 1) to terminal Ⓑ of L25. Low side to chassis.	A21, A42	Connect 180Ω carbon resistor from Terminal Ⓑ of L25 to junction of R35 and C40. Preset A43 to minimum capacity. Adjust A21 and A42 for maximum gain at 43.5MC and with 45.75MC at 70% of maximum response. Adjust A43 until 41.25MC is at 85% as in Fig. 6. In receivers which have A43 fixed adjust A21 and A42 for maximum gain and response as in Fig. 6. Disconnect the detector probe, the 180Ω resistor and the three 330Ω resistors.
37.	"	"	"	42.25MC 42.5MC 45.0MC 45.75MC 46.5MC	"	Vert. Amp. to point Ⓑ. Low side to chassis.		Adjust the bias potentiometer arm to -6 volts. Retouch A37 and A38 for response as in Fig. 7. Do not adjust A39 unless absolutely necessary. Attenuate sweep generator output to maintain 3 volts peak to peak on scope.

FM TRAP ADJUSTMENT

The FM Trap is provided for the purpose of reducing possible interference from FM stations. To adjust, tune in the channel affected by the offending signal and adjust A44 for minimum interference.
Check channels 5 and 6 to see that they have not been affected.

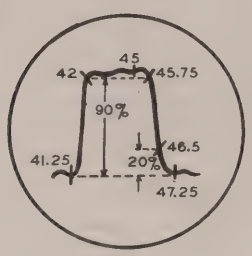


FIG. 5

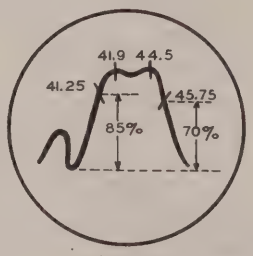


FIG. 6

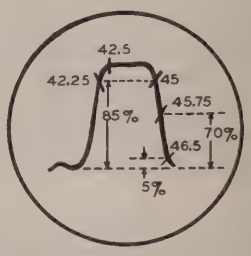
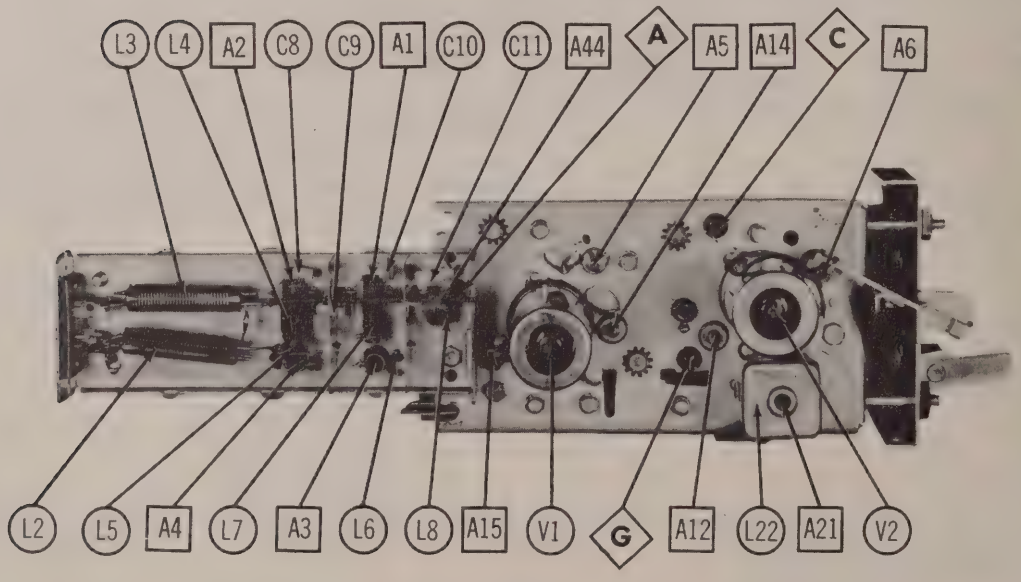


FIG. 7

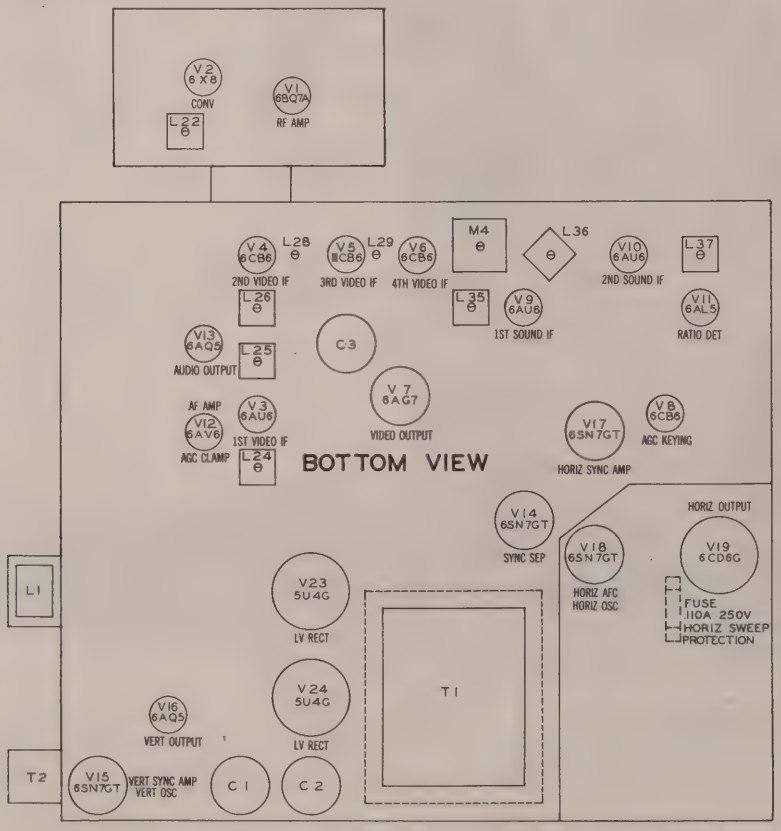


RF-TUNER-TOP VIEW

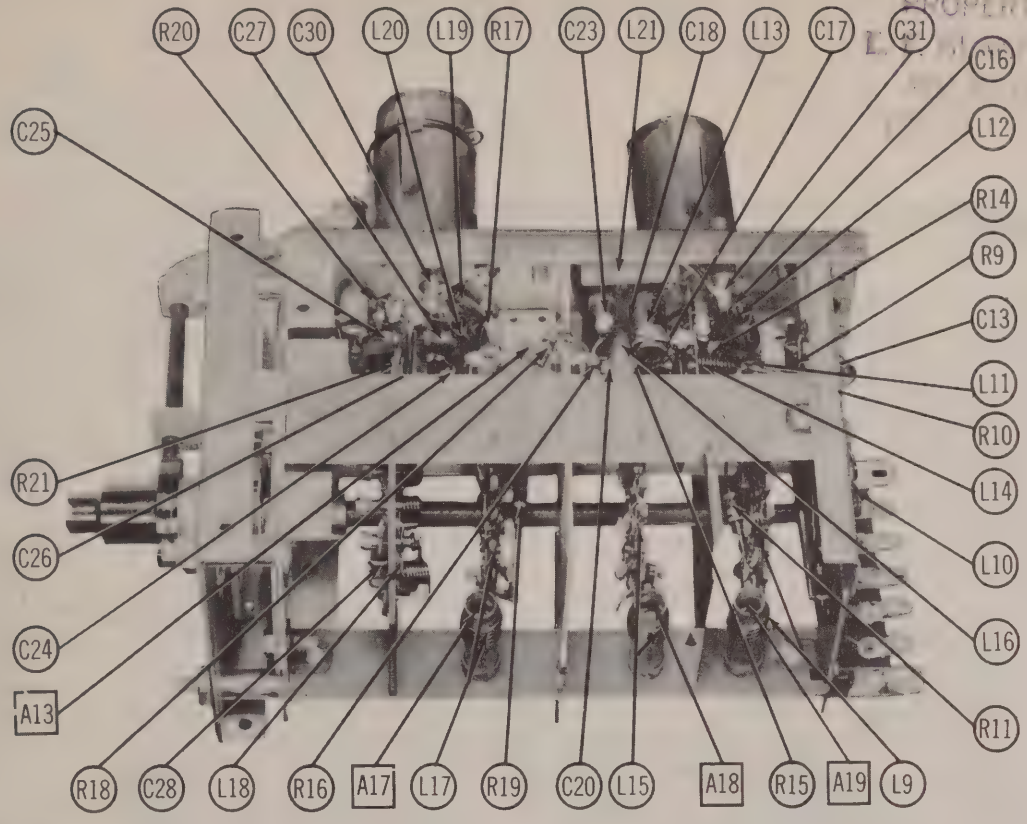
RESISTANCE MEASUREMENTS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6BQ7A	†2KΩ	†8.2Meg	†8.7Meg	0Ω	.1Ω	†8.7Meg	†350KΩ	130Ω	0Ω
V 2	6X8	†2.7KΩ	100KΩ	†12.7KΩ	0Ω	.1Ω	0Ω	100KΩ	†2.7KΩ	†2.7KΩ
V 3	6AU6	57KΩ	0Ω	0Ω	.1Ω	†12KΩ	†35KΩ	100Ω		
V 4	6CB6	57KΩ	56Ω	0Ω	.1Ω	†3.2KΩ	†35K Ω	ΠΩ		
V 5	6CB6	.2Ω	68Ω	.1Ω	0Ω	†3.1KΩ	†12.5KΩ	0Ω		
V 6	6CB6	.2Ω	180Ω	.1Ω	0Ω	†8.5KΩ	† 9.8KΩ	0Ω		
V 7	6AG7	0Ω	0Ω	0Ω	3.9KΩ	43Ω	†10.5KΩ	.1Ω	†8.2KΩ	
V 8	6CB6	260KΩ	†3.4KΩ	■0Ω	■.1Ω	570KΩ	†1.4KΩ	†3.4KΩ		
V 9	6AU6	470KΩ	0Ω	0Ω	.1Ω	▲1KΩ	▲1KΩ	82Ω		
V 10	6AU6	47KΩ	0Ω	0Ω	.1Ω	▲1KΩ	▲20KΩ	0Ω		
V 11	6AL5	6.8KΩ	6.8KΩ	.1Ω	0Ω	INF	0Ω	INF		
V 12	6AV6	10 Meg	0Ω	0Ω	.1Ω	350KΩ	350KΩ	†330KΩ		
V 13	6AQ5	▲470KΩ	▲470Ω	0Ω	.1Ω	†900Ω	†530Ω	▲470KΩ		
V 14	6SN7GT	†25KΩ	†1.3KΩ	180KΩ	†180KΩ	†680KΩ	370KΩ	■0Ω	■.1Ω	
V 15	6SN7GT	1.3Meg	†2 Meg	0Ω	†1.5Meg	†240KΩ	0Ω	0Ω	.1Ω	
V 16	6AQ5	3.3Meg	1.4KΩ	0Ω	.1Ω	†1.2KΩ	†1.2KΩ	3.3Meg		
V 17	6SN7GT	3.9Meg	†3.5KΩ	820Ω	1 Meg	†16KΩ	0Ω	0Ω	.1Ω	
V 18	6SN7GT	1.3Meg	92KΩ	220KΩ	220KΩ	†56KΩ	0Ω	0Ω	.1Ω	
V 19	6CD6G	INF	.1Ω	100Ω	INF	† Meg	100Ω	0Ω	†16KΩ	Top Cap # 150Ω
V 20	6W4GT	INF	INF	#160KΩ	INF	†240Ω	INF	¶.1Ω	¶0Ω	
V 21	6W4GT	INF	INF	#160KΩ	INF	†240Ω	INF	¶.1Ω	¶0Ω	
V 22	1B3GT	PINS 1 - 8 HAVE INF RESISTANCE								Top Cap #301Ω
V 23	5U4G	INF	12KΩ	INF	17.8Ω	INF	16.8Ω	INF	12KΩ	
V 24	5U4G	INF	12KΩ	INF	17.8Ω	INF	16.8Ω	INF	12KΩ	
V 25	21AP4	■0Ω	320KΩ	Pin 10 #270KΩ	Pin 11 470KΩ	Pin 12 ■.1Ω				

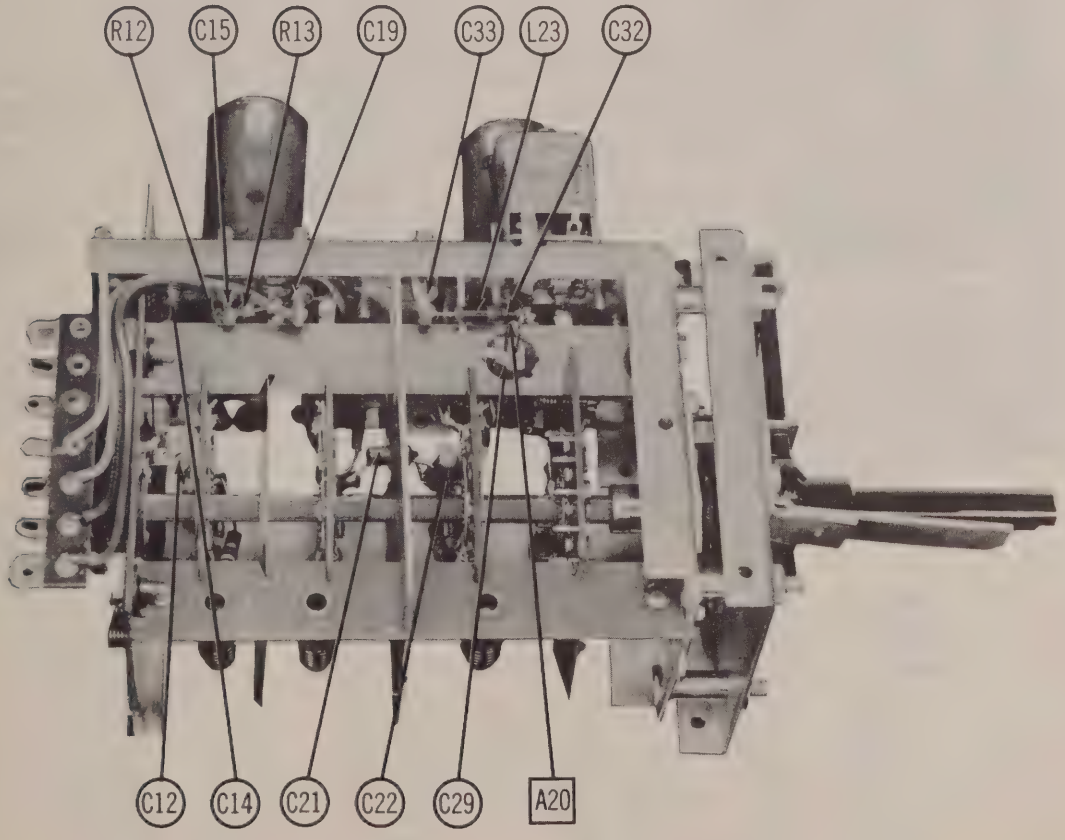
ALL MEASUREMENTS TAKEN IN TV POSITION ONLY
- ■ MEASURED FROM 130 VOLT LINE.
- ¶ MEASURED FROM PIN 8 OF V20
- ▲ MEASURED FROM 120 VOLT LINE.
- † MEASURED FROM PIN 8 OF V23.
- # MEASURED FROM PIN 3 OF V20 & V21.



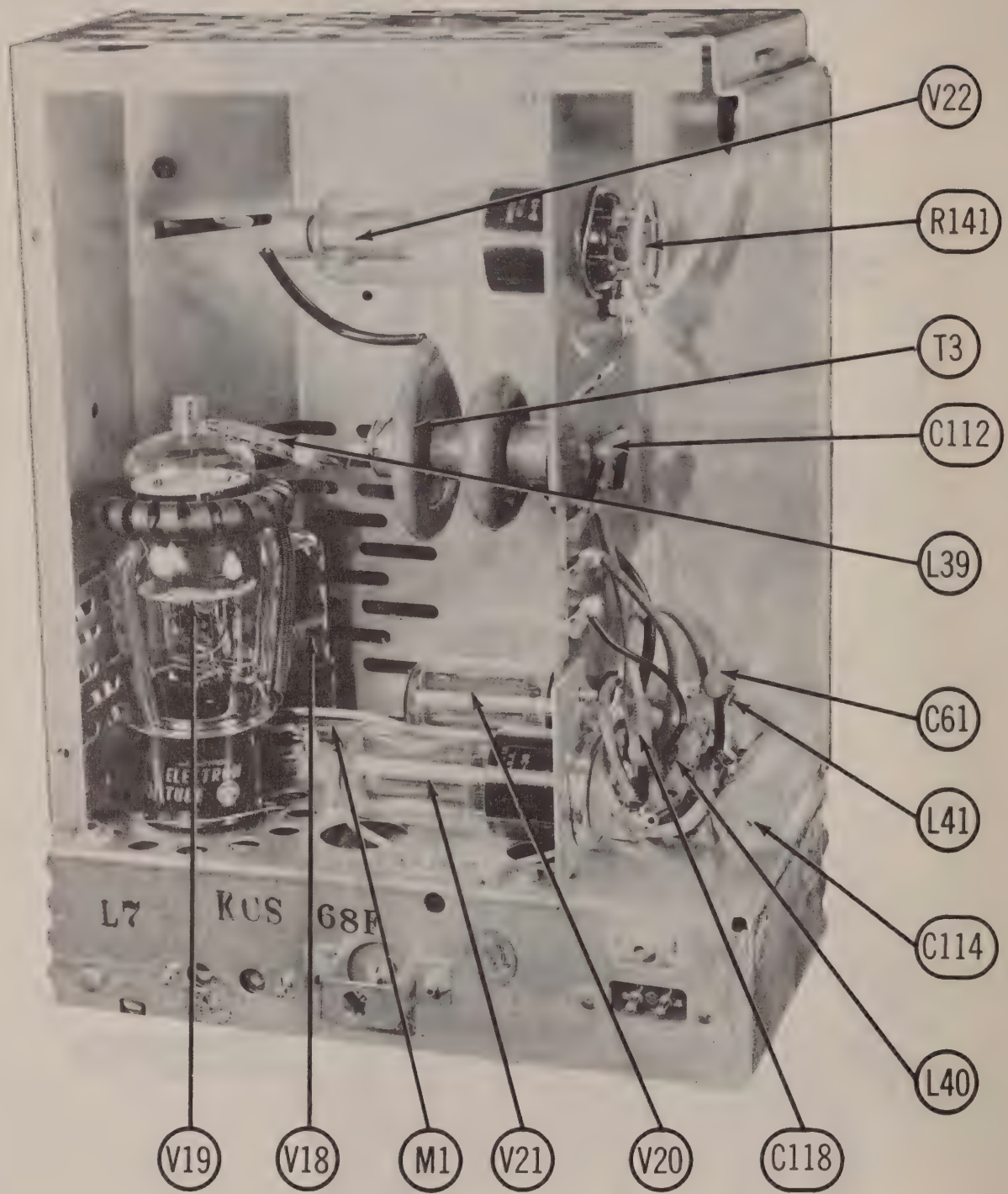
TUBE PLACEMENT CHART



RF TUNER-RIGHT SIDE



RF TUNER-LEFT SIDE



HIGH VOLTAGE COMPARTMENT

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: RCA Victor PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RTMA BASE TYPE	NOTES
V1	RF Amplifier	6BQ7	6BQ7	9AJ	
V2	Converter	6X8	6X8	9AK	
V3	1st. Video IF Amp.	6AU6	6AU6	7BK	
V4	2nd. Video IF Amp.	6CB6	6CB6	7CM	
V5	3rd. Video IF Amp.	6CB6	6CB6	7CM	
V6	4th. Video IF Amp.	6CB6	6CB6	7CM	
V7	Video Output	6AG7	6AG7	8Y	
V8	AGC Keying	6CB6	6CB6	7CM	
V9	1st. Sound IF Amp.	6AU6	6AU6	7BK	
V10	Limiter	6AU6	6AU6	7BK	
V11	Ratio Detector	6AL5	6AL5	6BT	
V12	AF Amplifier-AGC Clamper	6AV6	6AV6	7BT	
V13	Audio Output	6AQ5	6AQ5	7BZ	
V14	Sync Separator	6SN7GT	6SN7GT	8BD	
V15	Vert. Sync Amp.-Vert. Oscillator	6SN7GT	6SN7GT	8BD	
V16	Vert. Output	6AQ5	6AQ5	7BZ	
V17	Horiz. Sync Amp.	6SN7GT	6SN7GT	8BD	
V18	Horiz. AFC-Horiz. Oscillator	6SN7GT	6SN7GT	8BD	
V19	Horiz. Output	6CD6G	6CD6G	5BT	
V20	Damper	6W4GT	6W4GT	4CG	
V21	Damper	6W4GT	6W4GT	4CG	
V22	HV Rectifier	1B3GT	1B3GT	3C	
V23	LV Rectifier	5U4G	5U4G	5T	
V24	LV Rectifier	5U4G	5U4G	5T	

CATHODE-RAY TUBE

ITEM No.	REPLACEMENT DATA: RCA Victor PART No.	REPLACEMENT DATA: SYLVANIA PART No.		RTMA BASE TYPE	NOTES
V25	21AP4	21AP4		12D	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: RCA Victor PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C1A	▬35	450	76485	AFH4-16		D103		FP445	TVL-3785	
B	10	200		PRS250/4				TC50X	TVA-1504	
C	■35	450								
D	▲10	450								
C2A	▬35	450	76486	AFH4-82		D104		FP432.9		
B	■25	450						TC74		
C	100	50								
D	▲20	200								
C3A	▬35	450	75510	AFH4-16		D015		FP445	TVL-3785	
B	■35	450							TVA-1709	
C	▲10	450								
D	5	450								
C4	5	450	28417	PRS450/4		BR445		TC70	TVA-1702	
C5	2	10	76742	PRS150/4		BBR-2-50T		TC302	TVA-1201	
C6	2	10	76742	PRS150/4		BBR-2-50T		TC302	TVA-1201	
C7	5	50	74521	PRS150/4		BR550		TC30	TVA-1303	
C8	18		54207		TCZ-18		NP0K-180			
C9	5		93056	SI5NP0	TCZ-4.7		NP0K-050	ZT-555	5TCCB-V47	
C10	27		70935	SI27NP0	TCZ-27		NP0K-270			
C11	33		76739	SI33NP0	TCZ-33		NP0K-330	ZT-5433	5TCC-C33	
C12	22		76557	SI22NP0	TCZ-22		NP0K-220		5TCC-Q22	
C13	1500		73748	BPD-0015	DD-152	TM5D15	801-0015	DC-5215	5HK-D15	
C14	1-4		76532		829-4			CT551		
C15	1500		75166							
C16	1500		73748	BPD-0015	DD-152	TM5D15	801-0015	DC-5215	5HK-D15	
C17	8		70597							
C18	1500		73748	BPD-0015	DD-152	TM5D15	801-0015	DC-5215	5HK-D15	
C19	1500		75166							
C20	270		75199	SI270	D6-271		GP2K-271	UC-5327	5GA-T27	
C21	270		75199	SI270	D6-271		GP2K-271	UC-5327	5GA-T27	
C22	220		77460	SI220	D6-221		GP2K-221	UC-5322	5GA-T22	
C23	1500		75166							
C24	5		93056	SI5NP0	TCZ-4.7		NP0K-050	ZT-555	5TCCB-V47	
C25	22		76557	SI22NP0	TCZ-22		NP0K-220		5TCC-Q22	
C26	10		55326	SI10N080			N080-331-100			
C27	22		76558	SI22NP0	TCZ-22		NP0K-220		5TCC-Q22	
C28	.68		71088		TCZ-.68		NP0K-R68			
C29	.8-3		77151		829-3			CT565A		
C30	1500		75166							
C31	1500		75166							
C32	1500		75610	SI1500	D6-152	TM5D15	801-0015	DC-5215	5HK-D15	
C33	1500		75166							
C34	4700		73473	BPD-0047	DD-502	TM5D5	811-005	DC-525	5HK-D47	
C35A	4700		76470	BPD-2X0047	DD-2-502	TM5D5	811-005	DC-525	5HK-2D47	
B	4700					TM5D5	811-005	DC-525		
C36A	4700		76470	BPD-2X0047	DD-2-502	TM5D5	811-005	DC-525	5HK-2D47	
B	4700					TM5D5	811-005	DC-525		
C37	.047	400	73553	P488-047	DF-503	PTE4S47		PT4147	4TM-S47	
C38	4700		73473	BPD-0047	DD-502	TM5D5	811-005	DC-525	5HK-D47	
C39	4700		73473	BPD-0047	DD-502	TM5D5	811-005	DC-525	5HK-D47	
C40	4700		73473	BPD-0047	DD-502	TM5D5	811-005	DC-525	5HK-D47	
C41	4700		73473	BPD-0047	DD-502	TM5D5	811-005	DC-525	5HK-D47	
C42	4700		73473	BPD-0047	DD-502	TM5D5	811-005	DC-525	5HK-D47	
C43	82				TCN-82		N750L-820			Note 1
C44A	4700		76470	BPD-2X0047	DD-2-502	TM5D5	811-005	DC-525	5HK-2D47	
B	4700					TM5D5	811-005	DC-525		
C45	4700		73473	BPD-0047	DD-502	TM5D5	811-005	DC-525	5HK-D47	
C46A	4700		76470	BPD-2X0047	DD-2-502	TM5D5	811-005	DC-525	5HK-2D47	
B	4700					TM5D5	811-005	DC-525		
C47	4700		73473	BPD-0047	DD-502	TM5D5	811-005	DC-525	5HK-D47	
C48	1500		75166							

PARTS LIST AND DESCRIPTIONS (Continued)

CAPACITORS (CONT.)

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA RCA Victor PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C49	4700		73473	BPD-0047	DD-502	TM5D5	811-005	DC-525	5HK-D47	
C50A	4700		78470	BPD-2X0047	DD-3-502	TM5D5	811-005	DC-525	5HK-2D47	
B	4700					TM5D5	811-005	DC-525		
C51	10000		73960	BPD-01	DD-103	TM5S1	821-01	DC-511	5HK-S1	
C52	.0047	600	73920	P688-0047	D6-472	PTE6D47	GP2-333-472	PT6247	6TM-D47	
C53	47		39043	3147	D6-470	TM5Q5	GPIK-470	UC-5447	5GA-Q47	
C54	15		39044	3U15N750	TCN-15		N750K-150	NT-5415	5TCU-Q15	
C55	.22	400	73794	P488-22		PTE4P22		PT4025	4TM-P22	
C56	10000		73960	BPD-01	DD-103	TM5S1	821-01	DC-511	5HK-S1	
C57	.1	400	73551	P488-1	DF-104	PTE4P1		PT401	4TM-P1	
C58	.0047	600	73920	P688-0047	D6-472	PTE6D47	GP2-333-472	PT6247	6TM-D47	
C59	10000		73960	BPD-01	DD-103	TM5S1	821-01	DC-511	5HK-S1	
C60	10000		73960	BPD-01	DD-103	TM5S1	821-01	DC-511	5HK-S1	
C61	39		78574							
C62	100	1000	78578	1468L-HV-0001		5WP15T1		MCK-310	10GAB-T1	
C63	10000		73960	BPD-01	DD-103	TM5S1	821-01	DC-511	5HK-S1	
C64A	10000		75877	BPD-01	DD-3-103	TM5D5	821-01	DC-511	5HK-2S1	
B	10000			BPD-01			821-01	DC-511		
C65	56		71924	3156	D6-560		GPIK-560	UC-5456	5GA-Q56	
C66A	10000		75877	BPD-01	DD-3-103	TM5D5	821-01	DC-511	5HK-2S1	
B	10000			BPD-01			821-01	DC-511		
C67	1-4		76800	839-4				CT5S1		
C68	470	500	54003	1469-0005		5R5T5		MCB245	MS-35	
C69	470	500	54003	1469-0005		5R5T5		MCB245	MS-35	
C70	.0022	600	73595	P688-0022	D6-222	PTE6D22	GP2-333-222	PT6222	6TM-D22	
C71	.0047	600	73920	P688-0047	D6-472	PTE6D47	GP2-333-472	PT6247	6TM-D47	
C72	.015	200	73797	P288-015		PTE6S15		PT400	6TM-S15	
C73	.01	400	73561	P488-01	D6-103	PTE4S1	GP2-333-103	PT4I1	4TM-S1	
C74	.0027	600	73590	SI2700	D6-272		GP2-333-272	UC-5227	5GA-D27	
C75	270		47617	SI270	D6-271		GP2K-271	UC-5327	5GA-T27	
C76	.01	400	73561	P488-01	D6-103	PTE4S1	GP2-333-103	PT4I1	4TM-S1	
C77	.0027	600	73920	SI2700	D6-272		GP2-333-272	UC-5227	5GA-D27	
C78	.022	400	73562	P488-022		PTE4S22		PT4122	4TM-S22	
C79	.001	600	75643	P688-001	D6-102	PTE6D1	GP2L-102	PT621	6TM-D1	
C80	.001	600	75643	P688-001	D6-102	PTE6D1	GP2L-102	PT621	6TM-D1	
C81	150		44202	SI150	D6-151	TM5T15	GP2K-151	UC-5315	5GA-T15	
C82	100		39396	SI100	D6-101	TM5T1	GPIK-101	UC-531	5GA-T1	
C83	.01	400	73561	P488-01	D6-103	PTE4S1	GP2-333-103	PT4I1	4TM-S1	
C84	.0022	600	73595	P688-0022	D6-222	PTE6D22	GP2-333-222	PT6222	6TM-D22	
C85	.0047	600	73920	P688-0047	D6-472	PTE6D47	GP2-333-472	PT6247	6TM-D47	
C86	.01	600	73594							
C87	.047	600	73592							
C88	.22	600	74957	684-25		PTE6P25		PT6025	6TM-P25	
C89	.0022	1000	73803	P1088-0022		PTE10D22		PT10222	MB-D22	
C90	.022	400	73562	P488-022		PTE4S22		PT4122	4TM-S22	
C91	.022	400	73562	P488-022		PTE4S22		PT4122	4TM-S22	
C92	.022	600	73798	P688-022		PTE6S22		PT6122	6TM-S22	
C93	.1	400	73551	P488-1	DF-104	PTE4P1		PT401	4TM-P1	
C94	.1	600	73557	P688-1	DF-104	PTE6P1		PT601	6TM-P1	
C95	.01	400	73561	P488-01	D6-103	PTE4S1	GP2-333-103	PT4I1	4TM-S1	
C96	.001	600	75643	P688-001	D6-102	PTE6D1	GP2L-102	PT621	6TM-D1	
C97	100		39396	SI100	D6-101	TM5T1	GPIK-101	UC-531	5GA-T1	
C98	82	1000	78474							
C99	150		44202	SI150	D6-151	TM5T15	GP2K-151	UC-5315	5GA-T15	
C100	82	1000	78474							
C101	.047	600	73592	P688-047	DF-503	PTE6S47		PT6147	6TM-S47	
C102	.47	200	73787	P288-47		PJ2P5		PT405	2TM-P47	
C103	.022	400	73562	P488-022		PTE4S22		PT4122	4TM-S22	
C104	.047	400	73553	P488-047	DF-503	PTE4S47		PT4147	4TM-S47	
C105	270	1000	76579							
C106	.01	600	73594							
C107	.0015	600	76508							
C108	.001	1000	73801	P1088-001		PTE10D1		PT1621	MB-D1	
C109	.047	600	73592	P688-047	DF-503	PTE6S47		PT6147	6TM-S47	
C110	.47	200	73787	P288-47				PT405	2TM-P47	
C111	1500		73748	BPD-0015	DD-152	TM5D15	801-0015	DC-5215	5HK-D15	
C112	33		76577							
C113	180		76575							
C114	.068	1000	73815							
C115	.068	1000	73815							
C116	.47	200	73787	P288-47		PJ2P5		PT405	2TM-P47	
C117	500	30000	76488							
C118	150	2000	76576							
C119	.01	400	73561	P488-01	D6-103	PTE4S1	GP2-333-103	PT4I1	4TM-S1	
C120	.047	400	75071	489ZGXY-05		PJ4S47		PT4147	4TM-S47	
C121	.047	400	75071	489ZGXY-05		PJ4S47		PT4147	4TM-S47	

Note 1. Not used in all Models.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA RCA Victor PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1	200KΩ	½	76444	QJ-325 *				Brightness
R2	15KΩ	½	76445	QI3-163XX				Contrast - Tapped ⓐ 4875Ω and 10KΩ
R3A	820KΩ	½	77201	QJ-378**	RTV-357			Vert. Hold-Panel
B	75KΩ							Horiz. Hold -Rear
R4A	2.5Meg	½	78448	QU-239	AG-84-S	AB-83	SU-565	Height
B	Shaft		Not Req.	Not Req.	FKS-1/4	AK-1	Not Req.	Attach to R4A
R5A	10KΩ	½	76497	QU-116	AG-27-S	AB-14	SU-30	Vert. Peaking
B	Shaft		Not Req.	Not Req.	FKS-1/4	AK-1	Not Req.	Attach to R5A
R6A	1500Ω	½	76449	QU-110	AG-11-S	AB-6	U-6	Vert. Linearity
B	Shaft		Not Req.	Not Req.	FKS-1/4	AK-1	Not Req.	Attach to R6A
R7A	50KΩ	½	76447	QU-123	AG-44-S	AB-31	SU-35	AGC
B	Shaft		Not Req.	Not Req.	FKS-1/4	AK-1	Not Req.	Attach to R7A
R8A	1.5Meg	½	77223	QI8-159XX	AT-95		UDT-291	Volume-Tapped ⓐ 300KΩ & 600KΩ
B	Shaft		Not Req.	Not Req.	FKS-1/4		Not Req.	Attach to R8A
C	Switch		Not Req.	76-2	SWA-2		US-27	Attach to R8A

* CONCENTRIKIT EQUIVALENT - KIT K-2, BASE ELEMENTS & SHAFTS B11-129 & P1-200 (Panel) REAR (None) & R5-215

** CONCENTRIKIT EQUIVALENT - KIT K-2, BASE ELEMENTS & SHAFTS B11-137 & P1-200 (Panel) B11-125 & R1-216 (Rear)

RESISTORS

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA RCA Victor PART No.	IRC PART No.	NOTES
R9	33000Ω-5%	½	503233	BTS-3300-5%	
R10	150Ω	½	504115	BTS-150	
R11	3300Ω	½	503233	BTS-3300	
R12	47Ω	½	503047		
R13	82Ω	½	503082	BTS-82	
R14	470KΩ	½	504447	BTS-470K	
R15	1000Ω	½	504210	BTS-1000	
R16	1000Ω	½	504210	BTS-1000	
R17	100KΩ	½	504410		
R18	100KΩ	½	504410		
R19	3300Ω	½	503233	BTS-3300	
R20	100KΩ	½	504410		
R21	10KΩ	½	504310		
R22	3.3Meg-5%	1	512533	BTA-3.3Meg-5%	
R23	10KΩ	½	503310	BTS-10K	
R24	220K-5%	1	502422	BTA-220K-5%	
R25	150KΩ	½	503415	BTS-150K	
R26	10KΩ	½	503310	BTS-10K	
R27	56KΩ-5%	½	502356	BTS-56K-5%	
R28	100Ω	½	503110	BTS-100	
R29	100Ω	½	503110	BTS-100	
R30	1000Ω	½	503210	BTS-1000	
R31	68000Ω-5%	½	14659		Note 1
R32	1000 Ω	1	513210	BTA-1000	
R33	100Ω-5%	½	502110	BTS-100	
R34	33KΩ	½	503333	BTS-33K	
R35	1000Ω	½	503110	BTS-1000	
R36	8.2Meg	½	503582	BTS-8.2Meg	
R37	120KΩ	½	503412	BTS-120K	
R38	47KΩ	½	503347	BTS-47K	
R39	33KΩ	½	503333	BTS-33K	
R40	1000Ω	½	503110	BTS-1000	
R41	56Ω- 5%	½	502056		
R42	33KΩ	½	503333	BTS-33K	
R43	1000Ω	½	503110	BTS-1000	
R44	5600Ω-5%	½			Note 2
R45	68Ω-5%	½	34763		
R46	10KΩ	½	503310		
R47	3200Ω	½	503222	BTS-2200	
R48	56K-5%	½	502356		
R49	180Ω	½	503118	BTS-180	
R50	39KΩ-5%	½	503339		
R51	8200Ω	½	503282		
R52	6800Ω	1	513268	BTA-6800	
R53	10KΩ	2	523310	BTB-10K	
R54	3900-5%	½	502237	BTS-3900-5%	
R55	43Ω-5%	½	502043		Note 3
R56	220Ω	½	503122	BTS-220	
R57	6750Ω	10	76642	1 3/4A-7000	
R58	18KΩ	1	503318	BTA-18K	
R59	680Ω	½	503168	BTS-680	
R60	5600Ω	1	513256	BTA-5600	
R61	10KΩ	1	513310	BTA-10K	
R62	150KΩ	½	503415	BTS-150K	
R63	1000Ω	½	503210	BTS-1000	
R64	470KΩ	½	503447	BTS-470K	
R65	180KΩ	½		BTS-180K	Note 4
R66	100KΩ	1	503410	BTS-100K	
R67	270KΩ	½	503427	BTS-270K	
R68	27KΩ	½	503327	BTS-27K	
R69	100KΩ-5%	½	502410	BTS-100K-5%	
R70	150KΩ	½	503415	BTS-150K	
R71	470KΩ	½	503447		
R72	82Ω-5%	½	502082	BTS-82-5%	
R73	1000Ω	½	503210	BTS-1000	
R74	47KΩ	½	503367		
R75	56KΩ	½	503356		
R76	33KΩ	½	503333	BTS-33K	
R77	1000Ω	½	503210	BTS-1000	
R78	47Ω-5%	½	503047		

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA RCA Victor PART No.	IRC PART No.	NOTES
R79	1200-5%	½	502212	BTS-1200-5%	
R80	1000Ω-5%	½	502210	BTS-1000-5%	
R81	68000Ω-5%	½	14659	BTS-6800-5%	
R82	68000Ω-5%	½	14659	BTS-6800-5%	
R83	39KΩ-5%	½	503339	BTS-39K-5%	
R84	27KΩ	1	503327	BTA-27K	
R85	10 Meg	½	503810	BTS-10 Meg	
R86	330KΩ	½	503433	BTS-330K	
R87	470KΩ	½	503447	BTS-470K	
R88	470Ω	1	513147	BTA-470	
R89	470Ω	1	513147	BTA-470	
R90	220KΩ	½	503422	BTS-220K	
R91	1200Ω	½	503213	BTS-1200	
R92	150KΩ	½	503415	BTS-150K	
R93	470KΩ	½	503447	BTS-470K	
R94	470KΩ	½	503447	BTS-470K	
R95	8.2 Meg	½	503582	BTS-8.2Meg	
R96	680KΩ	½	503468	BTS-680K	
R97	1.5Meg	½	503515	BTS-1.5Meg	
R98	220KΩ	½	503422	BTS-220K	
R99	22KΩ	½	503322	BTS-22K	
R100	22KΩ	½	503322	BTS-22K	
R101	22KΩ	½	503322	BTS-22K	
R102	8200Ω	½	503282	BTS-8200	
R103	1 Meg	½	503 510	BTS-1 Meg	
R104	1 Meg-5%	½		BTS-1 Meg-5%	Note 5
R105	10 Meg	½	503610	BTS-10 Meg	Note 1
R106	820KΩ	½	503482	BTS-820K	Note 6
R107	10KΩ	½	503310	BTS-10K	
R108	3.3Meg	½	503533	BTS-3.3Meg	
R109	1200Ω	1		BTA-1200	Note 7
R110	68KΩ-5%	1	512368	BTA-68K-5%	
R111	560Ω	½	503156	BTS-560	Note 8
R112	220K Ω	½	503422	BTS-220K	
R113	150KΩ	½	503415	BTS-150K	
R114	10KΩ	½	503310	BTS-10K	
R115	2700Ω	½	503277	BTS-2700	Note 9
R116	1 Meg	½	503510	BTS-1 Meg	
R117	12KΩ	1	513312	BTA-12K	
R118	3.9Meg-5%	½	503539	BTS-3.9Meg-5%	
R119	820Ω	½	503182	BTS-820	
R120	82KΩ	1	513382	BTA-82K	Note 10
R121	68KΩ	1	513368	BTA-68K	Note 11
R122	330KΩ	½	503433	BTS-330K	
R123	820KΩ	½	503482	BTS-820K	
R124	68KΩ	1	513368	BTA-68K	
R125	150KΩ-5%	1	512415	BTA-150K-5%	
R126	150KΩ	½	503415	BTS-150K	
R127	3900Ω	½	503239	BTS-3900	
R128	8200Ω-5%	1	502282	BTA-8200-5%	Note 12
R129	18KΩ	½	503318	BTS-18K	
R130	68KΩ-5%	1	512368	BTA-68K-5%	
R131	56KΩ-5%	1	513356	BTA-56K-5%	
R132	390KΩ	½	503439	BTS-390K	
R133	390KΩ	½	503439	BTS-390K	Note 13
R134	47Ω	½	503047		
R135	1 Meg	½	503510	BTS-1 Meg	
R136	100Ω	2	74015	BW-2-100	
R137	8200Ω	2	523282	BTB-8200	
R138	8200Ω	2	523282	BTB-8200	
R139	82KΩ	1	513382	BTA-82K	
R140	200	5	76682	1 3/4A-200	
R141	1.5Ω-5%	½	78468		
R142A	950Ω	16			
B	4500Ω	6			
C	1500Ω	5			
D	1200Ω	1	76499		
E	10KΩ	5			
F	7KΩ	5			

Note 1. Not used in all models.
Note 2. Some models may use a 6800Ω resistor in this application.
Note 3. Some models may use a 47Ω resistor in this application.
Note 4. Some models may use a 150KΩ resistor in this application.
Note 5. Some models may use a 820KΩ resistor in this application.
Note 6. Some models may use a 1 Meg resistor in this application.
Note 7. Some models may use a 1000Ω resistor in this application.
Note 8. Some models may use a 470Ω resistor in this application.
Note 9. Some models may use a 3300Ω resistor in this application.
Note 10. Some models may use a 56KΩ resistor in this application.
Note 11. Some models may use a 47KΩ resistor in this application.
Note 12. Some models may use a 10KΩ resistor in this application.
Note 13. Some models may use a 330KΩ resistor in this application.

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	RATING SEC. 3	REPLACEMENT DATA RCA Victor PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.
T1	117VAC ⓐ 2.7A	700VCT .290ADC	5VAC ⓐ 6A	6.3VAC ⓐ 9.5A	76495				
			SEC. 4	SEC. 5					
			6.3VAC ⓐ 1.5A	6.3VAC Damper ⓐ 2.4A					

TRANSFORMER (SWEEP CIRCUITS)

ITEM No.	RATING DC RESISTANCE PRI.	RATING DC RESISTANCE SEC.	REPLACEMENT DATA RCA Victor PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	NOTES
T2	165Ω	1310Ω	74144	A-8122	A-4003	TBO-2	A-97Y	Vert. Osc. Trans.
T3	30Ω	0Ω	76501 ①					Horiz. Output Trans.
	tap ④		76672 ②					
	16Ω							
T4	620Ω	.6Ω	76494	A-9140 ③	A-3080 ⑤	TSO-6 ③	A-103X	Vert. Output Trans.
T5A	30Ω		76653	DY-10 ④	MDF-30	TY-4 ④	Y-20 ④	Horiz. Deflection Coils
B	3.5Ω							Vert. Deflection Coils
T6	12Ω		76483		MWC-2 ⑤			Horiz. Lin. Coil
T7	120Ω		76484					Width Coil

① Less filament winding
② Filament winding only for high voltage transformer
③ Drill new mounting holes
④ Use original deflection coil network
⑤ Enlarge mounting hole.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING IMPEDANCE PRI.	RATING IMPEDANCE SEC.	RATING DC RES. PRI.	RATING DC RES. SEC.	REPLACEMENT DATA RCA Victor PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	NOTES
T8	6.5KΩ	3.7Ω	380Ω	.5Ω	75520	A-3878	A-3020	RO-13	S-7X	

SPEAKER

ITEM No.	RATINGS SIZE	RATINGS FIELD	RATINGS V. C. IMP.	REPLACEMENT DATA RCA Victor PART No.	VIKING PART No.	QUAM PART No.	NOTES
SP1	12"	PM	3.7Ω	76833	12J11	12A31	

FILTER CHOKE

ITEM No.	RATINGS TOTAL DIRECT CURRENT	RATINGS D. C. RESISTANCE	RATINGS INDUCTANCE (0 CURRENT 1000 ∿)	REPLACEMENT DATA RCA Victor PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.
L1	.290ADC	39Ω	1.24 Hy.	76498	C-2326 ①	C-2996 ①	TR-1733 ①	C-23X ①

① Drill one new mounting hole.

COILS (RF-IF)

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA RCA Victor PART No.	MERIT PART No.	IRC PART No.	NOTES
L2	Ant. Trans.	.5Ω	.5Ω	73591			
L3	Ant. Trans.	.5Ω	.5Ω	73591			
L4	IF Trap	0Ω		76542			Includes Core
L5	Ant. Shunt Coil	0Ω		76538			Includes Core
L6	Ant. Shunt Coil	0Ω		76537			Includes Core
L7	IF Trap	0Ω		76541			Includes Core
L8	FM Trap	0Ω		76540			Includes core, Core part No. 76543
L9	Ant. Coils	0Ω		76556			Includes stator complete with rotor, coils, and C12, R11 & R9
L10	Ant. Shunt Coils	0Ω		76554			Includes stator complete with rotor, coils and C13
L11	Ant. Coil	0Ω		76561			Channel 13
L12	Fil. Choke	0Ω		73477			
L13	IF Trap	0Ω		76535			
L14	Neutralizing Coil	0Ω		76562			
L15	RF Coils	0Ω		76553			Includes stator complete with rotor, coils, and C20 & R16
L16	RF Coil	0Ω		76529			Channel 13, part no. includes 8-3.8MMF capacitors
L17	Mixer Grid Coils	0Ω		77353			Includes stator complete with rotor, coils and C21, C22, R17, R18 & R19
L18	Osc. Coils	0Ω		77205			Includes stator complete with rotor, coils and C26 & C28
L19	Fil. Choke	0Ω		76763			
L20	Fil. Choke	0Ω		76763			
L21	Fil. Choke	0Ω		77206			
L22	Conv. Plate	.1Ω	.1Ω	77148			Includes 2.2KΩ resistor
L23	RF Choke	.1Ω		77153			
L24	1st. Video IF Grid	0Ω	.2Ω	77198			Includes Trap & 5.6KΩ resistor
L25	1st. Video IF Plate	.2Ω		77197			Includes trap, also includes 4.7KΩ resistor and 100MMF capacitor.
L26	2nd. Video IF Grid	.2Ω		76435			Includes Trap
L27	Fil. Choke	0Ω		73477			
L28	3rd. Video IF	.2Ω	.2Ω	76433			
L29	4th. Video IF	.2Ω	.2Ω	76433			
L30	Series Peaking Coil	5.2Ω		76646	TV-186 *		72 Microhenries, wound on 3.3KΩ resistor
L31	Shunt Peaking Coil	1Ω		75252	TV-188		500 Microhenries
L32	4.5MC Trap	2.1Ω		76682	TV-151 †		Wound on 47MMF capacitor
L33	Shunt Peaking Coil	17Ω		75252	TV-188		500 Microhenries
L34	Series Peaking Coil	6.5Ω		76647	TV-182		180 Microhenries, wound on 22KΩ resistor
L35	1st. Sound IF	6.7Ω		76437			Tapped ⓐ 1.6Ω
L36	2nd. Sound IF	5.5Ω	3.3Ω	76438	TV-108 ■		
L37	Ratio Det.	4.3Ω	.1Ω	76439	TV-110		Tertiary Winding - .5Ω
L38	Horiz. Osc.	140Ω		76440	TV-162		Tapped ⓐ 35Ω, Horiz. Waveform Winding - 36Ω

RCA VICTOR MODELS 21T159DE, 21T174DE, 21T178DE, 21T179DE (Ch. KCS68F)

PARTS LIST AND DESCRIPTIONS (Continued)

RF-IF COILS (CONT.)

ITEM No.	USE	DC RES.		REPLACEMENT DATA			NOTES
		PRI.	SEC.	RCA Victor PART No.	MERIT PART No.	IRC PART No.	
L39	RF Choke	2.8Ω		76510		CL-1	4.7 Microhenries
L40	RF Choke	.72Ω		76640		CL-1	1.5 Microhenries
L41	RF Choke	.72Ω		76640		CL-1	1.5 Microhenries

* Parallel with 3.3KΩ resistor
† Drill mounting hole.
■ Drill new mounting holes.

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			RCA Victor PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1	3AG P/T	1/4A 250V	73600		318.250 (3AG-1/4A-P/T)		GJV-1/4	

DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		NOTES
					RCA Victor PART No.		
M2	Bayonet	7.5	.2	White	11765		Type #51

MISCELLANEOUS

ITEM No.	PART NAME	RCA Victor PART No.	NOTES
M3	RF Tuner	KRK11A	
M4	Video Detector Assy.	76436	Includes IF Transformer, 10KΩ resistor, 8MMF capacitor 10MMF capacitor, 36 Microhenry Coil and Crystal Diode #76675
M5	Switch	77222	TV-Phono-Tone Selector
M6	Focus Magnet	76652	Includes Centering Device
M7	Ion Trap	76141	
B6, B3	Trimmer Capacitor	75217	Horiz. Locking range and Horiz. Drive (2)
	Cabinet Back	77254	Model 21T159DE
	Cabinet Back	77253	Model 21T174DE, 21T178DE and 21T179DE
	Safety Glass	76622	
	Mask (Kinescope)	76696	
	Escutcheon	75456	
	Mask (Channel Selector)	75459	For Mahogany and Walnut Cabinets
	Mask (Channel Selector)	76589	For Oak and Maple Cabinets
	Knob	76595	Brightness, Vert. Hold, Maroon (2 Used)
	Knob	76625	Brightness, Vert. Hold, Tan (2 Used)
	Knob	76596	Brightness, Vert. Hold, Beige (2Used)
	Knob	74963	Off/On Volume, Picture, Horiz. Hold, Maroon (3Used)
	Knob	74001	Off/On Volume, Picture, Horiz. Hold, Tan (3 Used)
	Knob	75464	Off/On Volume, Picture, Horiz. Hold, Beige (3 Used)
	Knob	76597	TV-Phono-Tone, Maroon
	Knob	76626	TV-Phono-Tone, Tan
	Knob	76598	TV-Phono-Tone, Beige
	Knob	76593	Channel Selector, Maroon
	Knob	76624	Channel Selector, Tan
	Knob	76594	Channel Selector, Beige
	Knob	76591	Fine Tuning, Maroon
	Knob	76623	Fine Tuning, Tan
	Knob	76592	Fine Tuning, Beige

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

Touch-up adjustment of the RF Tuner Oscillator Circuit may be accomplished by removal of the Channel Selector and Fine Tuning knob.

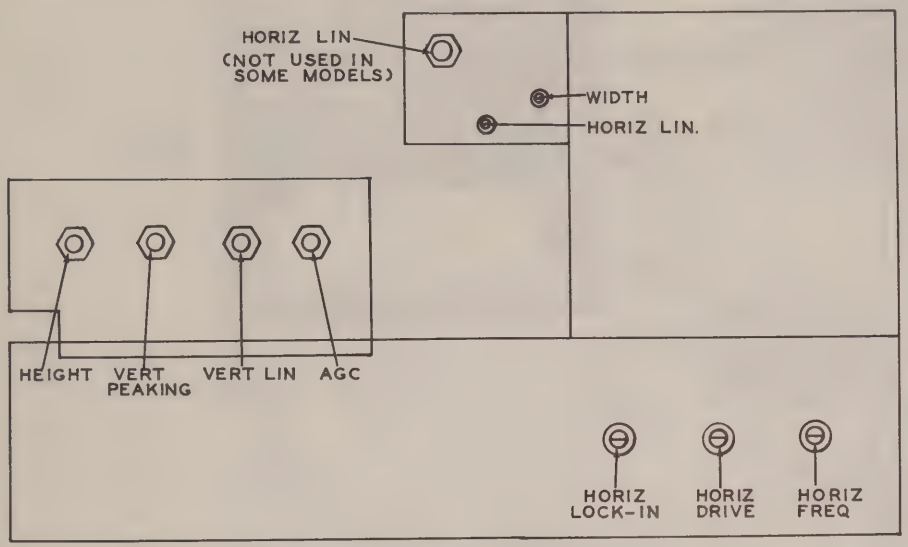
PICTURE TUBE SAFETY GLASS CLEANING

For picture tube safety glass cleaning, it is necessary to remove chassis. (See disassembly instructions).

PICTURE TUBE REMOVAL

For picture tube removal it is necessary to remove chassis. (See disassembly instructions).

SERVICE ADJUSTMENT LOCATION



REAR PANEL SERVICE CONTROLS

SPECIAL ADJUSTMENTS–AGC THRESHOLD CONTROL

Adjustment of the AGC threshold control can be made from the rear of chassis. For correct adjustment, see Horiz. Sweep Circuit Adjustments page 16.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

Adjustment of the Horiz. Osc. can be made from rear of chassis. For correct adjustment see Horiz. Sweep Circuit adjustments page 18.

SOUND IF DETECTOR BUZZ ADJUSTMENT

To eliminate Sound IF Detector buzz, adjust the Ratio Detector Secondary (L37) located on bottom of chassis. There is a hole provided on the bottom of the cabinet. For location on chassis. see tube placement chart.

FUSES

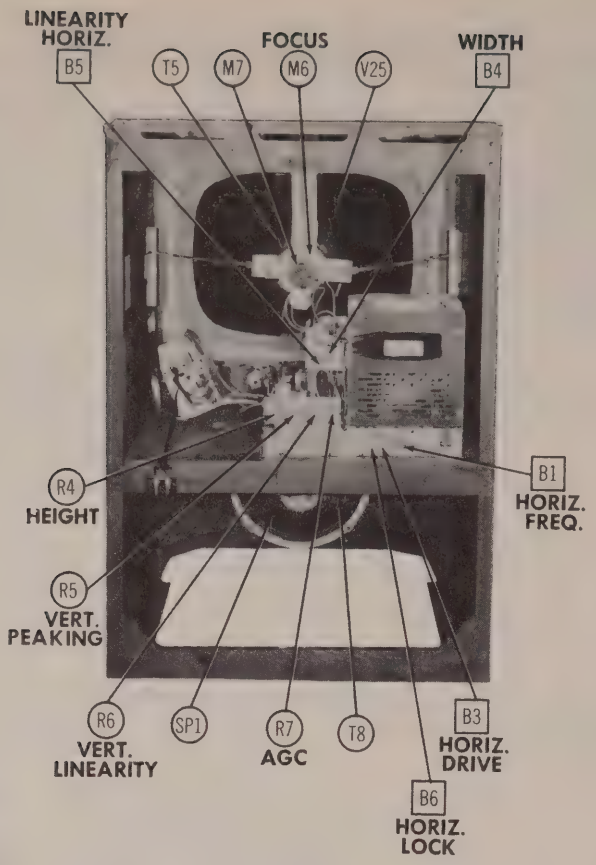
One fuse is used for Horiz. Sweep Circuit protection. For location, see tube placement chart.

CENTERING

Centering is accomplished mechanically by means of a separate plate on the focus magnet. Loosen the locking screw and move centering lever up and down and side to side for proper centering of picture.

DISASSEMBLY INSTRUCTIONS

1. Remove 8 push on type control knobs from front panel.
2. Remove 3 wood & 2 metal screws. Remove rear cover.
3. Disconnect transmission line to tuner.
4. Disconnect yoke plug, CRT socket, HV lead & speaker plug.
5. Remove 6 chassis bolts. Remove chassis.
6. Remove 3 speaker nuts. Remove speaker.



CABINET-REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Tune in a station, preferably a test pattern, and adjust the horizontal hold control to synchronize the picture horizontally. If the picture cannot be synchronized with the horizontal hold control adjust the horizontal frequency slug (B1).
If the picture still will not sync turn the horizontal waveform slug (B2) several turns counter clockwise and re-adjust B1 until the picture synchronizes.
If picture width or linearity is incorrect adjust the horizontal drive trimmer (B3), the horizontal width slug (B4), and the horizontal linearity slug (B5) for proper results.

HORIZONTAL WAVEFORM ADJUSTMENT
The horizontal waveform adjustment is made at the factory and normally should not require readjustment. B1 and B2 are adjusted simultaneously while watching the picture. Turn B1 until the picture loses sync and one diagonal black bar sloping downward to the right appears on the screen. Turn B2 clockwise and at the same time adjust B1 to maintain the single black bar. Continue until the oscillator begins to motorboat, then turn B2 counter clockwise until the motorboating stops. To check the adjustment turn B1 until the picture falls into sync, then reverse the direction of core rotation until the diagonal bar, sloping to the right, appears. Additional turning in the same direction should not result in more bars, but in motorboating. Retouch the adjustment of B2, if necessary, to attain this condition.
To observe the horizontal oscillator waveform, connect the low capacity probe of an oscilloscope to terminal C of the horizontal oscillator transformer, L38. Turn the horizontal hold control 1/4 turn from the clockwise position so that the picture is synchronized.
The waveform on the scope should appear as in Fig. 8. If it does not, adjust B2 for desired waveform, meanwhile keeping the picture synchronized by readjusting the horizontal hold control if necessary.

HORIZONTAL LOCKING ADJUSTMENT
With the horizontal hold control in full counter-clockwise position momentarily interrupt the signal by switching to another channel and back. If the picture remains in sync turn B1 and again switch off channel, repeating until the picture loses sync, with diagonal lines down to the left. Slowly turn the horizontal hold control clockwise and note the least number of bars obtained just before the picture pulls into sync. If the number is more than 2 adjust the horizontal locking trimmer (B6) slightly clockwise. If the number is less than 2 adjust B6 counter clockwise. Recheck as above for the least number of bars just before sync pull-in and readjust B6, if necessary, until 2 bars are present. Turn the horizontal hold control fully clockwise and adjust B1 until the diagonal bar sloping down to the right appear on the screen, then reverse the direction of adjustment of B1 until the bar just disappears, leaving the picture in synchronization.

AGC THRESHOLD CONTROL
To check adjustment of this control tune to a strong signal and synchronize the picture. Momentarily switch off channel and back. If picture reappears immediately the control does not require adjustment but if appreciable time is required for the picture to appear the control should be adjusted.
Turn AGC control fully counter clockwise, then turn clockwise until a very slight bend or change occurs in picture. Turn AGC control counter clockwise just enough to remove the bend or change in bend.
If signal is too weak to give a bend in picture as indicated above adjust the control for best signal to noise ratio in picture.

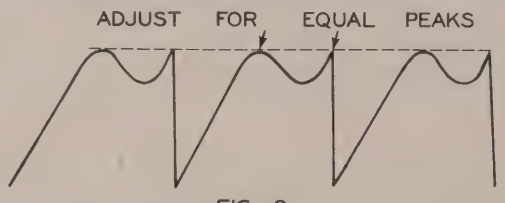
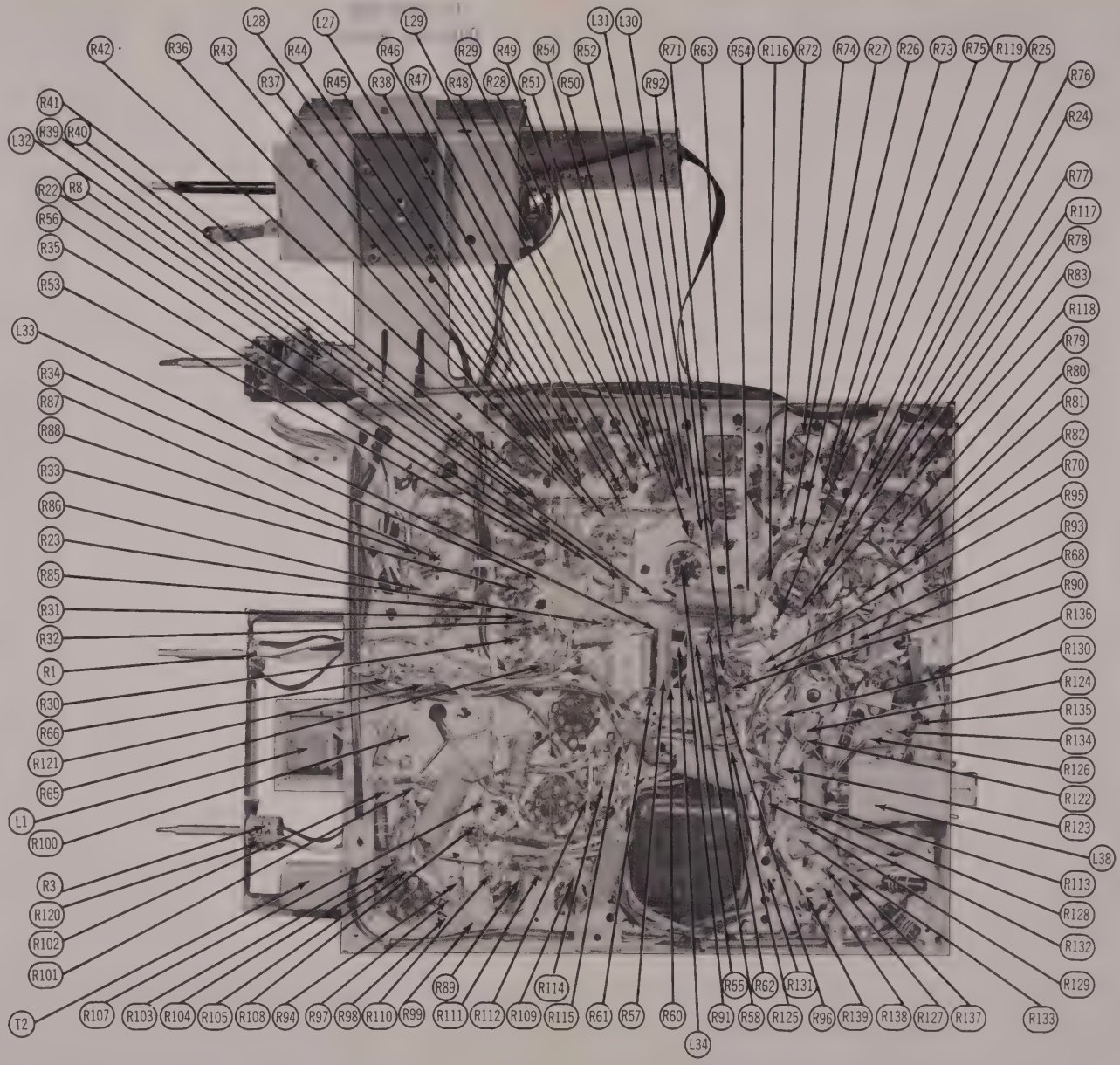


FIG. 8



CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION

L. F. DILMAN WISHIP
39M MAPLE ST.
DENVER, COLORADO

RCA VICTOR MODEL
45EY26 (Ch. RS-138L, M)

RCA VICTOR MODEL
45EY26 (Ch. RS-138L, M)

TRADE NAME	RCA Victor Model 45-EY-26 (Ch. RS-138L, M)
MANUFACTURER	RCA Victor Div., Radio Corp. of America, Camden, New Jersey
TYPE SET	AC Operated Phono Amplifier With Automatic Record Changer
TUBES (THREE)	Types 12AV6 or 12SQ7 AF Amp., 50C5 or 50L6GT Audio Output , 35W4 Rectifier
POWER SUPPLY	110-120 Volts AC-60 Cycle RATING .32 Amp. @ 117 Volts AC

FOR SERVICE INFORMATION ON RECORD CHANGER UNIT RCA MODEL RP190A-2,
SEE PHOTOFACT SET #144-FOLDER #7 OR RECORD CHANGER MANUAL CM-4.

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: RCA Victor PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RTMA BASE TYPE	NOTES
V1A	AF Amplifier	12AV6	12AV6	7BT	Used in RS-138M Chassis
B	AF Amplifier	12SQ7	12SQ7	8Q	Used in RS-138L Chassis
V2A	Audio Output	50C5	50C5	7CV	Used in RS-138M Chassis
B	Audio Output	50L6GT	50L6GT	7S	Used in RS-138L Chassis
V3	Rectifier	35W4	35W4	5BQ	Used in both RS-138L & RS-138L Chassis.

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: RCA Victor PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C1A	80		75980	PRS150/80-40		BRD8415		TCD498	TVA-3455	Red
B	50									Green
C2	.01	400	73561	P488-01	D6-103	PTE4S1	GP2-333-103	PT411	4TM-S1	
C3	82	500								
C4	.0047	600	73920	P688-0047	D6-472	PTE6D47	GP2-333-472	PT6247	6TM-D47	
C5	.01	200	73561	P488-01	D6-103	PTE4S1	GP2-333-103	PT411	4TM-S1	
C6	.033	400	73552	P688-033		PTE6S3		PT6133	6TM-S3	
C7	.001	600	75643	P688-001	D6-102	PTE6D1	GP2L-102	PT621	6TM-D1	
C8	.047	400	73553	P488-047		PTE6S47		PT4147	4TM-S47	
C9	.047	400	73553	P488-047		PTE6S47		PT4147	4TM-S47	

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: RCA Victor PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1 Meg	½	76201	Q13-137X	AK-111	BT-72	UT-440	Volume-Tap ② 220KΩ
B	Shaft		Not Req.	Not Req.	FS-3	Not Req.	Not Req.	Attach to R1A

RESISTORS

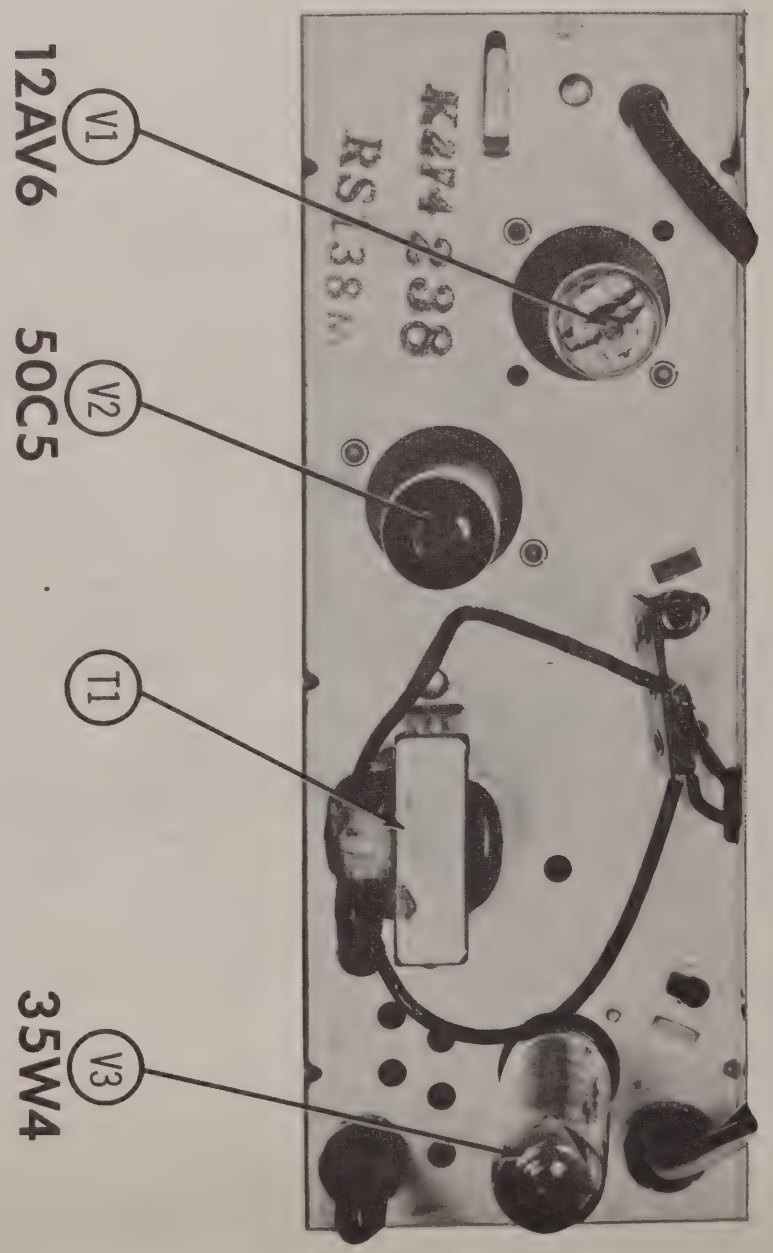
ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: RCA Victor PART No.	REPLACEMENT DATA: IRC PART No.	NOTES
R2	47KΩ	½	503347	BTS-47K	
R3	4.7Meg	½	503547	BTS-4.7Meg	
R4	270KΩ	½	503427	BTS-270K	
R5	270KΩ	½	503427	BTS-270K	

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: RCA Victor PART No.	REPLACEMENT DATA: IRC PART No.	NOTES
R6	150Ω	½	503115	BTS-150	
R7	1500Ω	½	503215	BTS-1500	
R8	33Ω	1	513033		
R9	120Ω	5	72314	1 3/4A-125	

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: RCA Victor PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	NOTES
T1	2.7KΩ	3.2Ω	268Ω tap ② 39Ω	.7Ω	75939	A-3336 ①	A-3031①			① Drill one new mounting hole.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	RCA Victor PART No.	VIKING PART No.	QUAM PART No.	
SP1	4" x 6"	PM	3.2Ω	76407	46J6	46A07	

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA							REMARKS
	RCA Victor PART No.	ASTATIC PART No.		SHURE PART No.		ELECTRO-VOICE PART No.		
		CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	
M1	74067	CAC-J or AC-J	Q-33 A1	W31AR	A53MG	34	0-1 or S-1	

ASTATIC SHURE AND ELECTRO VOICE NEEDLE LISTINGS SHOWN ABOVE ARE SPECIFIED FOR THE RESPECTIVE REPLACEMENT CARTRIDGES LISTED. FOR ORIGINAL CARTRIDGE NEEDLE REPLACEMENT SEE BELOW.

PHONO NEEDLE

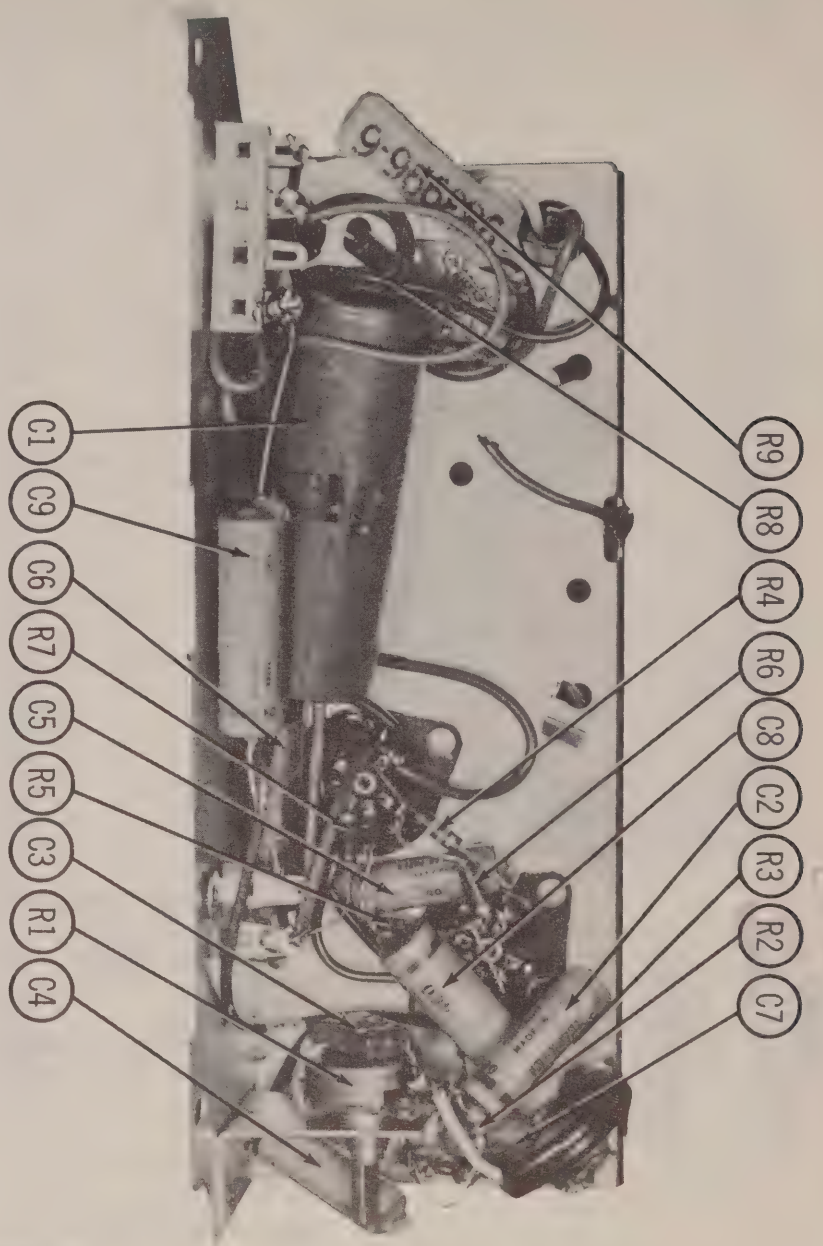
(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA			REMARKS
	RCA Victor PART No.	WALCO PART No.	JENSEN PART No.	
M2			M-75LP or M-74LP	

MISCELLANEOUS

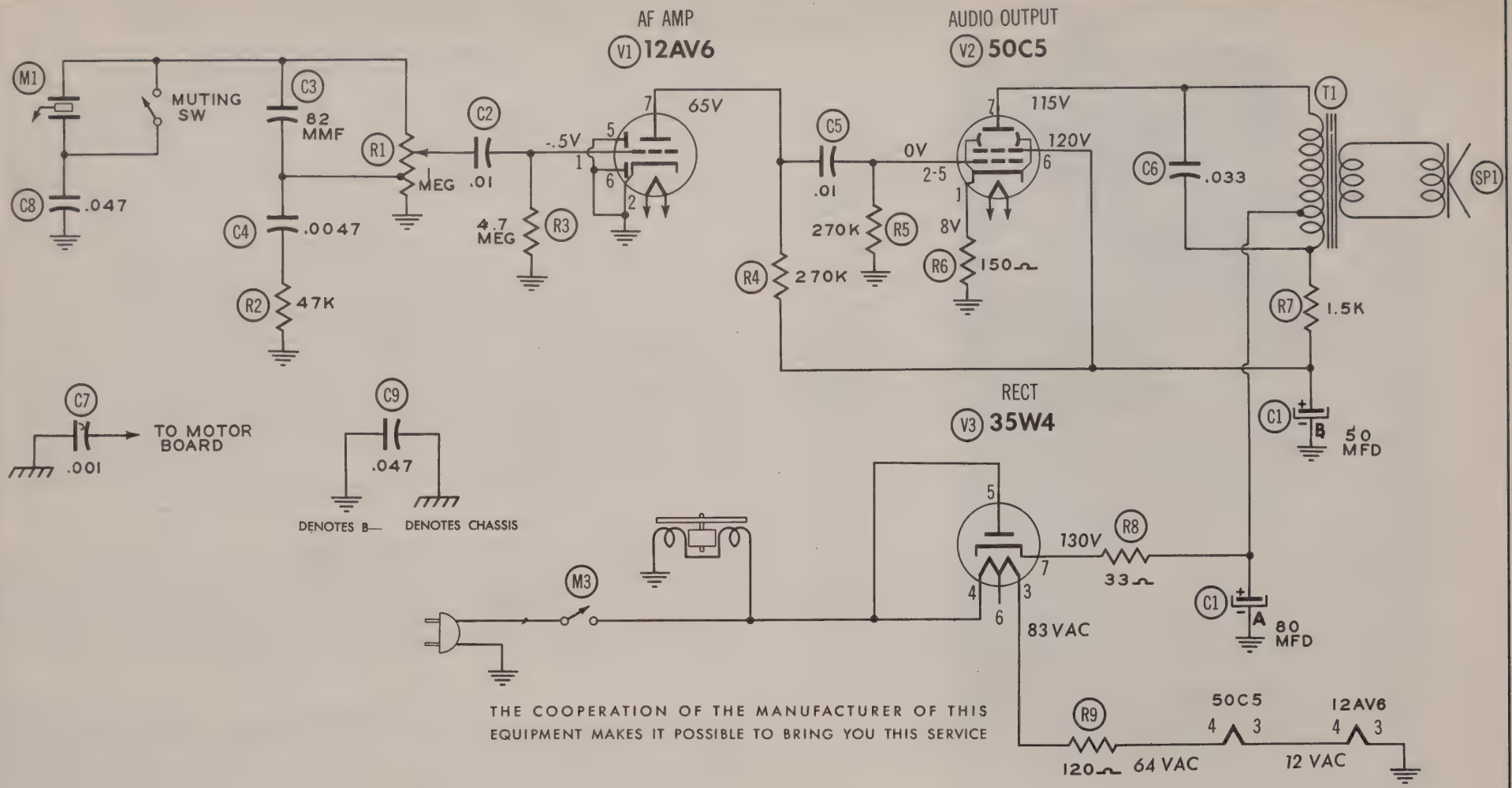
ITEM No.	PART NAME	RCA Victor PART No.	NOTES
M3	Switch		Off/On
	Cabinet	Y2374	Plastic
	Bottom Cover	76722	
	Knob	77234	Volume

CHASSIS—BOTTOM VIEW



RCA VICTOR
MODEL 45-EY-26 (Ch. RS-138L, M)

RCA VICTOR
MODEL 45-EY-26 (Ch. RS-138L, M)



THE COOPERATION OF THE MANUFACTURER OF THIS EQUIPMENT MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	12AV6	4.7Meg	0Ω	0Ω	12Ω	0Ω	0Ω	†270KΩ
V 2	50C5	150Ω	270KΩ	12Ω	48Ω	270KΩ	†1.5KΩ	†300Ω
V 3	35W4	48Ω	INF	65Ω	48Ω	48Ω	55Ω	100KΩ

ALL MEASUREMENTS TAKEN WITH PHONO MOTOR CONNECTED
† MEASURED FROM PIN 7 OF V3

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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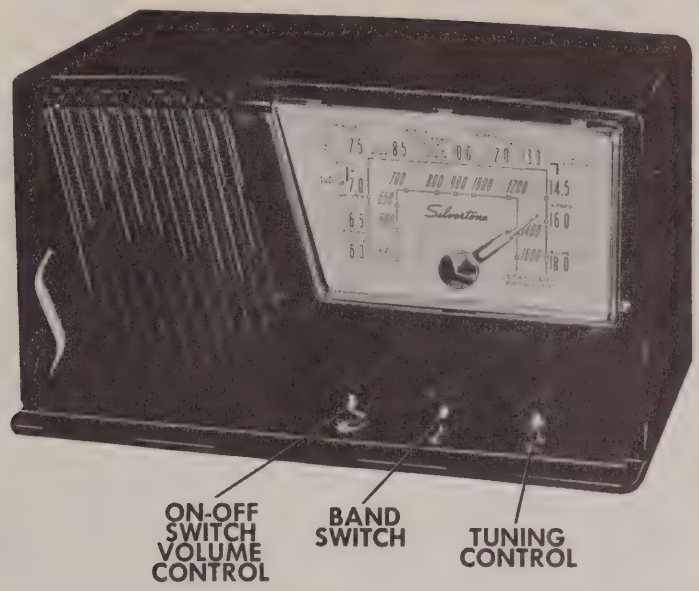
197-10

1. DC Voltage measurements are at 20,000 ohms per volt, AC Voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 Volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

PROPERTY OF
L. F. [illegible] SHOP
3924 WADE ST
DENVER, COLORADO



SILVERTONE
MODEL 2022 (Ch. 132.027)

SILVERTONE
MODEL 2022 (Ch. 132.027)

TRADE NAME Silvertone Model 2022 (Ch. 132.027)
SUPPLIER Sears Roebuck & Co., 925 So. Homan, Chicago, Ill.
TYPE SET AC/DC Operated 2 Band AM Superheterodyne Receiver
TUBES (Five) Types 12BE6 Conv., 12BA6 IF Amp., 12AV6 Det.-AVC-AF Amp., 50C5 Audio Output, 35W4 Rectifier

POWER SUPPLY 105-120 Volts AC/DC — RATING .25 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST 540 - 1600 KC — SHORT WAVE 6-18MC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer, if available. If not, connect a .1MFD capacitor in series with low side of signal generator and B-. Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
To set pointer, turn tuning capacitor fully closed and set pointer to last reference mark at low frequency end of dial.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.05MFD	High side to pin 7 (grid) of 12BE6 (V1). Low side to B-.	455KC (400∿Mod)	BC	Tuning gang fully open	Across voice coil	A1, A2, A3, A4	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
2.		Loop	1670KC	"	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.		"	535KC	"	Tuning gang fully closed	"	A6	"
4.		"	1400KC	"	1400KC	"	A7	"
5.		"	600KC	"	600KC	"	A6	"
6.	50MMF	High side to antenna terminal. (Disconnect hank). Low side to chassis.	18MC	SW	Tuning gang fully open	"	A8	Starting from minimum capacity adjust A8 for maximum output. Check for image frequency by slightly closing gang, where image should be found.
7.	"	"	6MC	"	6MC	"		Turn tuning gang to 6MC signal which should be located slightly before tuning gang is closed.
8.	"	"	16MC	"	16MC	"	A9	Tune set to locate the 16MC signal and its image. The desired signal is the one occuring at point of lesser capacity. Adjust A9 for maximum. Retune gang slightly for a new maximum and repeak A9.

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PARTS LIST AND DESCRIPTIONS

SILVERTONE
MODEL 2022 (Ch. 132.027)

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RTMA BASE TYPE	INSTALLATION NOTES
		Silvertone PART No.	STANDARD REPLACEMENT		
V1	Converter	12BE6	12BE6	7CH	
V2	IF Amplifier	12BA6	12BA6	7BK	
V3	Det.-AVC-AF Amp.	12AV6	12AV6	7BT	
V4	Audio Output	50C5	50C5	7CV	
V5	Rectifier	35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	Silvertone PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C1A	80	150	N25830	PRS150/80-40-20		EDL8415C		3N538	TVA-3455	Red
B	50	150								Blue
C	20	25								Green
C2	100	500		1468-0001	D6-101	5W5T1	GP1K-101	MC235	1FM-35	
C3	47	500		1468-00005	D6-470	5W5Q5	GP1K-470	MC225	1FM-45	
C4	5600	500						PT4147	2TM-S47	
C5	.047	200		P288-047	DF-503	PJ2S5		PT4147	2TM-S47	
C6	.047	200		P288-047	DF-503	PJ2S5		PT4147	2TM-S47	
C7	220	500		1468-00025	D6-221	5W5T25	GP2K-221	MC240	1FM-325	
C8	.01	600		P688-01	D6-103	PTE6S1	GP2-333-103	PT611	6TM-S1	
C9A	.005									
B	250				♦PC-70		♦1406-01		♦104C1	
C										
C10	.01	400		P488-01	D6-103	PTE4S1	GP2-333-103	PT411	4TM-S1	
C11	.047	400		P488-047	DF-503	PTE4S47		PT4147	4TM-S47	
C12	.047	400		P488-047	DF-503	PTE4S47		PT4147	4TM-S47	
C13	.047	400		P488-047	DF-503	PTE4S47		PT4147	4TM-S47	

♦ Items C9A, C9B, C9C, R8A, R8B are combined in one unit.
When replacing items separately C9B and C9C should total 250MMF.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	Silvertone PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	
R1A	500KΩ	½	N22963	Q13-133	AG-60-Z	B-60-Z	U-48	Volume
B	Shaft		Not Req.	Not Req.	FS-3	Not Req.	Not Req.	Attach to R1A
C	Switch		Not Req.	76-1	SWB	Not Req.	US-26	Attach to R1A

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	Silvertone PART No.	IRC PART No.	
R2	1 Meg	½		BTS-1 Meg	
R3	22KΩ	½		BTS-22K	
R4	1000Ω	½		BTS-1000	
R5	2.2Meg	½		BTS-2.2Meg	
R6	100Ω	½		BTS-100	
R7	4.7Meg	½		BTS-4.7Meg	

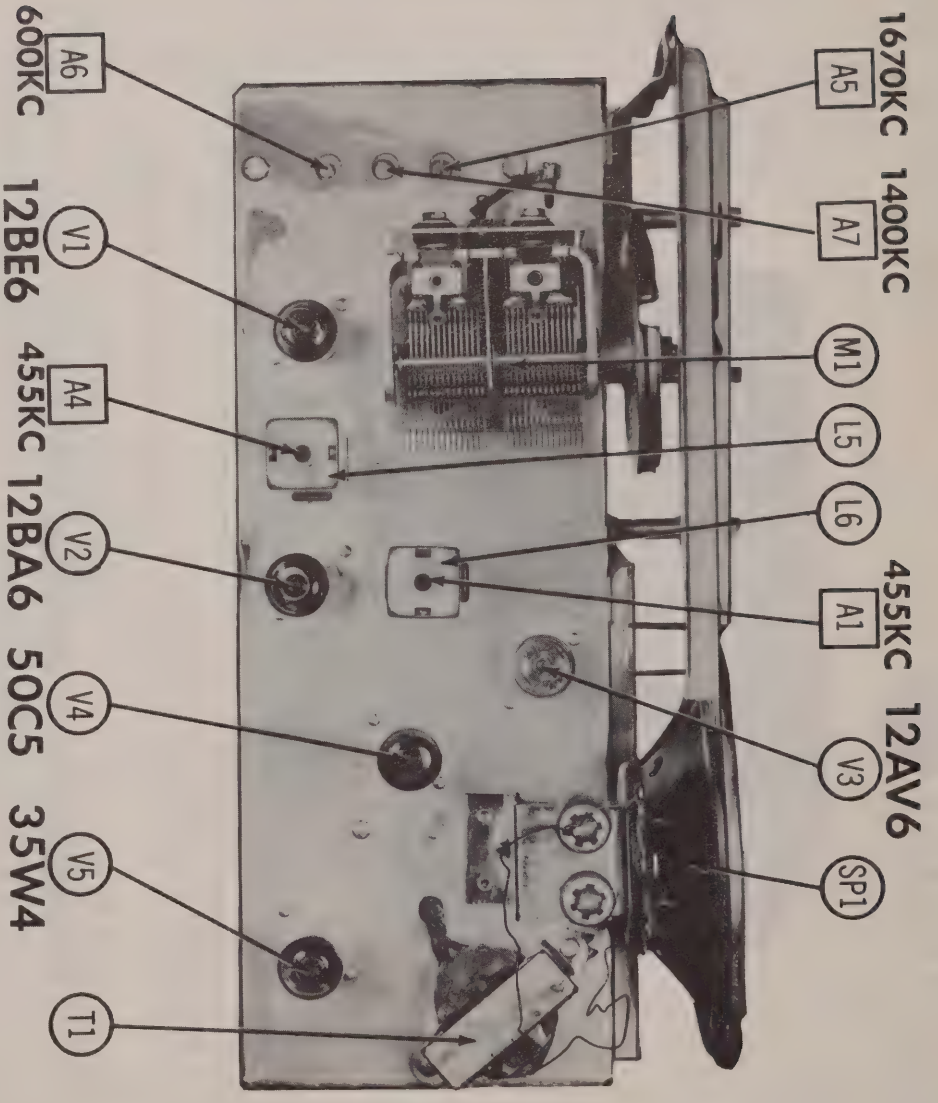
ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	Silvertone PART No.	IRC PART No.	
R8A	500KΩ	½			
B	500KΩ	½			
R9	150Ω	½		BTS-150	
R10	1200Ω	2		BTB-1200	
R11	330KΩ	½		BTS-330K	

♦Items R8A, R8B, C9A, C9B, C9C are combined in one unit.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA					NOTES
	IMPEDANCE		DC RES.		Silvertone PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	
	PRI.	SEC.	PRI.	SEC.						
T1	2.68Ω	3.4Ω	106Ω Tap @ 5Ω	.41Ω	N-25868-1	A-3330	A-3031	RO-3		

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	Silvertone PART No.	JENSEN PART No.	QUAM PART No.	
SP1	5"	PM	3.4Ω	C-25756	ST-105 Mod. P5-X	5A07	

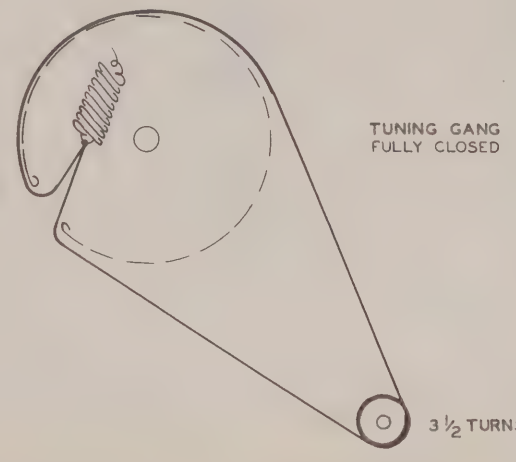
COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA			NOTES
		PRI.	SEC.	Silvertone PART No.	MERIT PART No.	IRC PART No.	
L1	Loop Ant.	.1Ω	2.1Ω	N25844			
L2	SW Ant. Coil	.4Ω	0Ω	N25843-1			
L3	BC Osc. Coil	.5Ω	5Ω	N25871-1	BC-397 *		
L4	SW Osc. Coil	.2Ω	0Ω	N25842-1			
L5	Input IF	14Ω	14Ω	N21797-6	BC-352		
L6	Output IF	14Ω	14Ω	N21797-6	BC-353		

* Drill mounting hole.

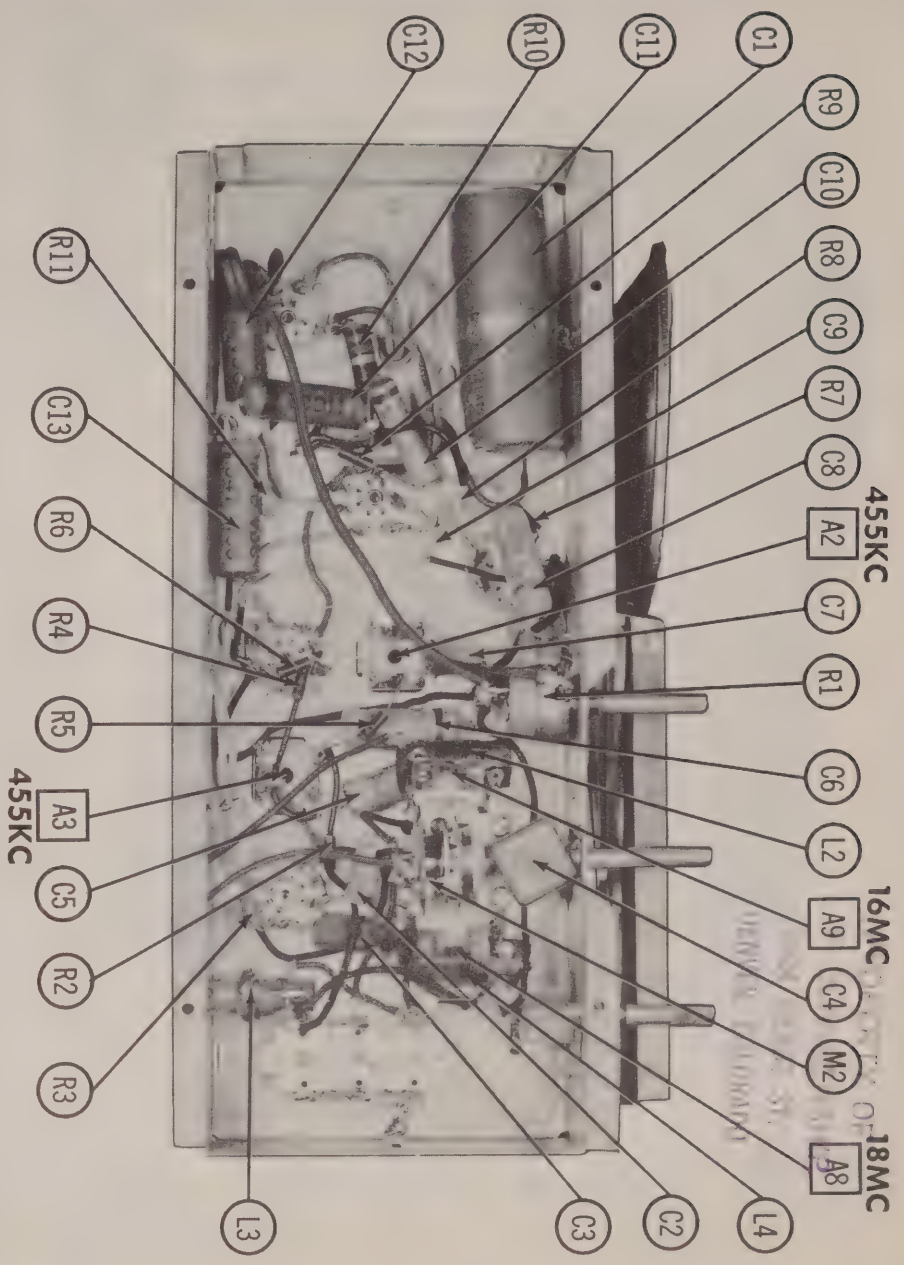
MISCELLANEOUS

ITEM No.	PART NAME	Silvertone PART No.	NOTES
M1	Tuning Capacitor	N25834	50-443MMF, 50-443MMF,
M2	Switch	N25831	Band Selector
A5, A6, A7	Trimmer Capacitor Assy.	N25832	BC Osc. Adj., BC Osc. Padder Adj., BC Ant. Adj.
A8	Trimmer Capacitor	N25833	SW. Osc. Adj. (2-30MMF)
A9	Trimmer Capacitor	N25833	SW. Ant. Adj. (2-30MMF)
	Cabinet Assy.	N40365	Brown
	Back	N22940-1	
	Dial Crystal	N22937	
	Pointer	N22956	
	Scale	N22954-3	
	Knob	N22604-5A	Off/On Volume
	Knob	N22604-5E	Band Selector
	Knob	N22604-5C	Tuning



DIAL CORD DRIVE

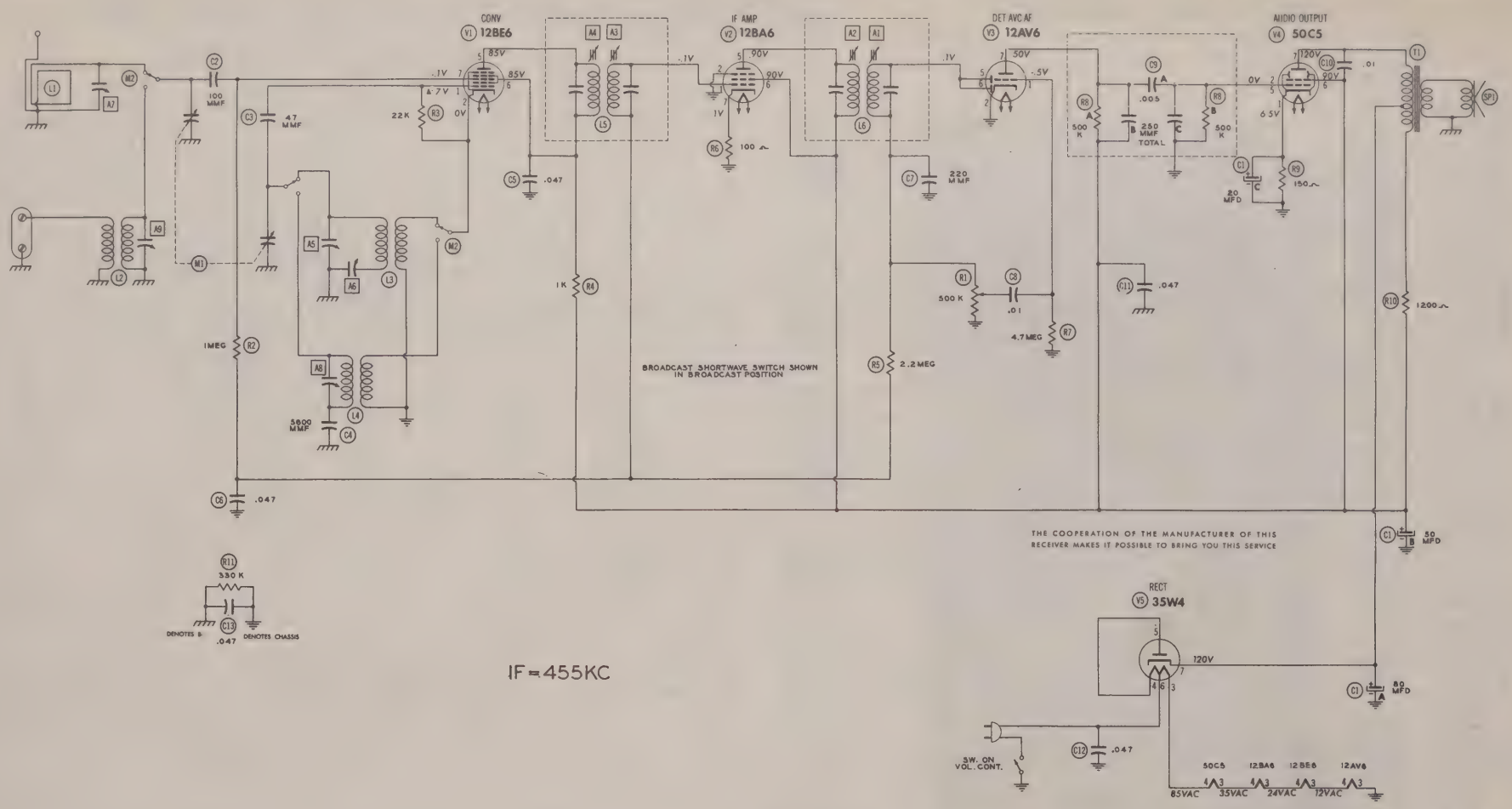
CHASSIS—BOTTOM VIEW



SET 197 FOLDER 11

SILVERTONE
MODEL 2022 (Ch. 132.027)

SILVERTONE
MODEL 2022 (Ch. 132.027)



RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	12BE6	22KΩ	.5Ω ‡ .2Ω	13Ω	26Ω	†2.2KΩ	†2.2KΩ	3.7Meg
V 2	12BA6	2.7Meg	0Ω	26Ω	38Ω	†1.2KΩ	†1.2KΩ	100 Ω
V 3	12AV6	4.7Meg	0Ω	0Ω	13Ω	500KΩ	500KΩ	† 470KΩ
V 4	50C5	150Ω	470KΩ	38Ω	88Ω	470KΩ	†1.2KΩ	† 100Ω
V 5	35W4	†5Ω	INF	88Ω	126Ω	126Ω	118Ω	500KΩ

ALL MEASUREMENTS TAKEN IN "BC" POSITION UNLESS OTHERWISE SPECIFIED
† MEASURED IN "SW" POSITION
▲ TAKEN WITH VACUUM TUBE VOLTMETER
†MEASURED FROM PIN 7 OF V 5.

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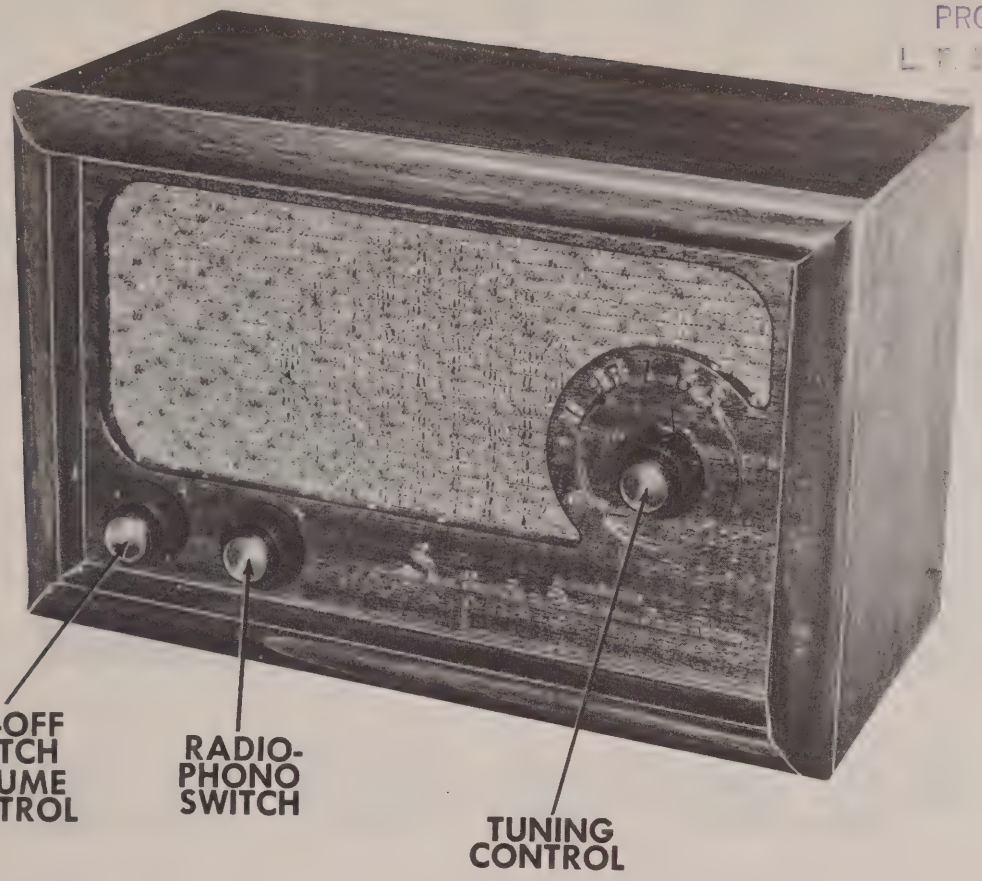
197-11

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

PROPERTY OF
L. F. [illegible]

SPARTON MODELS
350, 351, 1300, 1301 (Ch. 6L3)



SPARTON MODELS
350, 351, 1300, 1301 (Ch. 6L3)

TRADE NAME	Sparton Models 350, 351, 1300, 1301 (Ch. 6L3)
MANUFACTURER	Sparks-Withington Co., Jackson, Michigan
TYPE SET	AC Operated AM Superheterodyne Receiver (Models 1300, 1301 Radio-Phono Combinations)
TUBES (Six)	Types 6BA6 RF Amp., 6BE6 Conv., 6BA6 IF Amp., 6AV6 Det.-AVC-AF Amp., 6AQ5 Audio Output, 6X4 Rectifier
POWER SUPPLY	110-120 Volts AC - 60 Cycle
TUNING RANGE—BROADCAST	535-1620 KC
RATING	.32 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.02MFD	High side to pin 7 (grid) of 6BE6 (V2). Low side to chassis.	456KC	Tuning gang fully open.	Across voice coil.	A1, A2, A3, A4	Adjust for maximum output.
2.	"	"	1620KC	"	"	A5	"
3.		Loop.	1500KC	Tune to 1500KC signal.	"	A6, A7	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.

Coil L4 has been accurately preset at the factory and should not be adjusted in the field.

Replace receiver in cabinet, turn tuning gang fully closed and set pointer to index mark at low frequency end of dial.

FOR SERVICE INFORMATION ON RECORD CHANGER UNIT SEE V-M MODEL 950 - PHOTOFACT SET 107, FOLDER 13 OR RECORD CHANGER MANUAL CM-3.

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: SPARTON PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RTMA BASE TYPE	INSTALLATION NOTES
V1	RF Amplifier	6BA6	6BA6	7BK	
V2	Converter	6BE6	6BE6	7CH	
V3	IF Amplifier	6BA6	6BA6	7BK	
V4	Det-AVC-AF Amp.	6AV6	6AV6	7BT	
V5	Audio Output	6AQ5	6AQ5	7BZ	
V6	Rectifier	6X4	6X4	5BS	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: SPARTON PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C1A	■20	350	PA4307-32	E4D572					R1298	
B	▲40	350								
C	▲10	200								
D	20	25								
C2	15		PA4347-1	SI15NP0	TCZ-15		NP0K-150	ZT-5415	5TCC-Q15	
C3	110		CC30H-111A		TCN-110		N750L-111			
C4	10000		PA4334-2	BPD-01	DD-103	TM5S1	821-01	DC-511	5HK-S1	
C5	10000		PA4334-2	BPD-01	DD-103	TM5S1	821-01	DC-511	5HK-S1	
C6	150				TCN-150		N750L-151		5TCU-T15	
C7	33		PA4347-2		TCN-33		N750K-330		5TCU-Q33	
C8	22		PA4347-4		TCN-22		N750K-220		5TCU-Q22	
C9	10000		PA4334-2	BPD-01	DD-103	TM5S1	821-01	DC-511	5HK-S1	
C10	10000		PA4334-2	BPD-01	DD-103	TM5S1	821-01	DC-511	5HK-S1	
C11A	100		♦PA4329-1	SI100	♦PC-50	TM5T1	♦1403-01	UC-531	♦100C1	
B	100			SI100		TM5T1		UC-531		
C12	.05	400	PC40GK-503	P488-05	DF-503	PTE4S5		PT415	4TM-S5	
C13	2000		PA4334-3	BPD-002	DD-202	TM5D5	801-002	DC-522	5HK-D2	
C14	110		CC30H-111A		TCN-110		N750L-111			
C15	10000		PA4334-2	BPD-01	DD-103	TM5S1	821-01	DC-511	5HK-S1	
C16	10000		PA4334-2	BPD-01	DD-103	TM5S1	821-01	DC-511	5HK-S1	
C17	10000		PA4334-2	BPD-01	DD-103	TM5S1	821-01	DC-511	5HK-S1	
C18	.0033	1000	PC42GN-332	P1088-0033		PTE16D33		PT16233	MB-D33	

Note 1: Some models use 47MMF NP0 in this application (Part No. PA4347-3).
♦: Items C11A, C11B, R11 are combined in one unit.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: SPARTON PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	500KΩ	½	PA-4459					Tone - Panel.
B	1Meg	½						Volume & Switch Tapped @ 600KΩ - Rear.

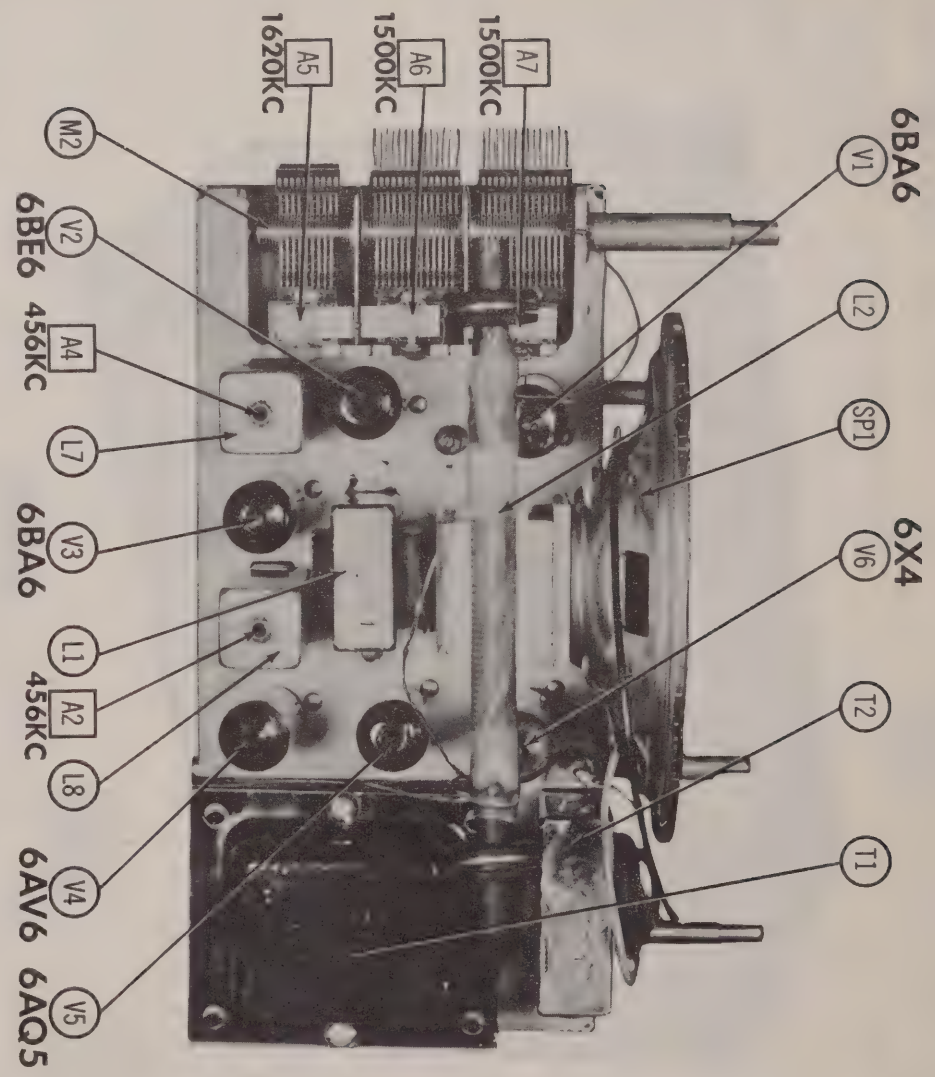
RESISTORS

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: SPARTON PART No.	IRC PART No.	NOTES
R2	3300Ω	½	BR12N-332	BTS-3300	Note 1.
R3	1Meg	½	BR12N-105	BTS-1Meg	
R4	120Ω	½	BR12S-121	BTS-120	
R5	100KΩ	½	BR12S-104	BTS-100K	
R6	47Ω	½			Note 2.
R7	22KΩ	½	BR12N-223	BTS-22K	
R8	10KΩ	½	BR12S-103	BTS-10K	
R9	220Ω	½	BR12S-221	BTS-220	
R10	100KΩ	½	BR12S-104	BTS-100K	

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: SPARTON PART No.	IRC PART No.	NOTES
R11	47KΩ	½	♦PA4329-1	BTS-47K	
R12	1Meg	½	BR12N-105	BTS-1Meg	
R13	22KΩ	½	BR12N-223	BTS-22K	
R14	1Meg	½	BR12N-105	BTS-1Meg	
R15	10Meg	½	BR12N-106	BTS-10Meg	
R16	220KΩ	½	BR12N-224	BTS-220K	
R17	470KΩ	½	BR12N-474	BTS-470K	
R18	330Ω	1	CR12S-331	BTA-330	
R19	6800Ω	2	DR12S-682	BTB-6800	

Note 1: Used only in console models.
Note 2: Not used in all models.
♦: Items R11, C11A, C11B are combined in one unit.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA				
	PRI.	SEC. 1	SEC. 2	SEC. 3	SPARTON PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.
T1	117V @ .32A	485VCT .045ADC	6.3V @ 2.3A		AB44031-1	PM-8419 ①	P-3047 ①		R-8B ①

① Drill new mounting holes.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA					NOTES
	IMPEDANCE		DC RES.		SPARTON PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	
	PRI.	SEC.	PRI.	SEC.						
T2	6KΩ	3.4Ω	396Ω	.48Ω	AB44067-1	A-3877 ①	A-2930 ①	RO-301 ①	S-3X ①	

① Drill one new mounting hole.

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	SPARTON PART No.	JENSEN PART No.	QUAM PART No.	
SP1	5"	PM	3.4Ω	PC-6300047	ST-105 Mod. P5-X	5A07	

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA				
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ∿)	SPARTON PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.
L1	.045	315Ω	6HY	AB47011-1	C-1706 ①			C-6X ①

① Drill one new mounting hole.

COILS (RF-IF)

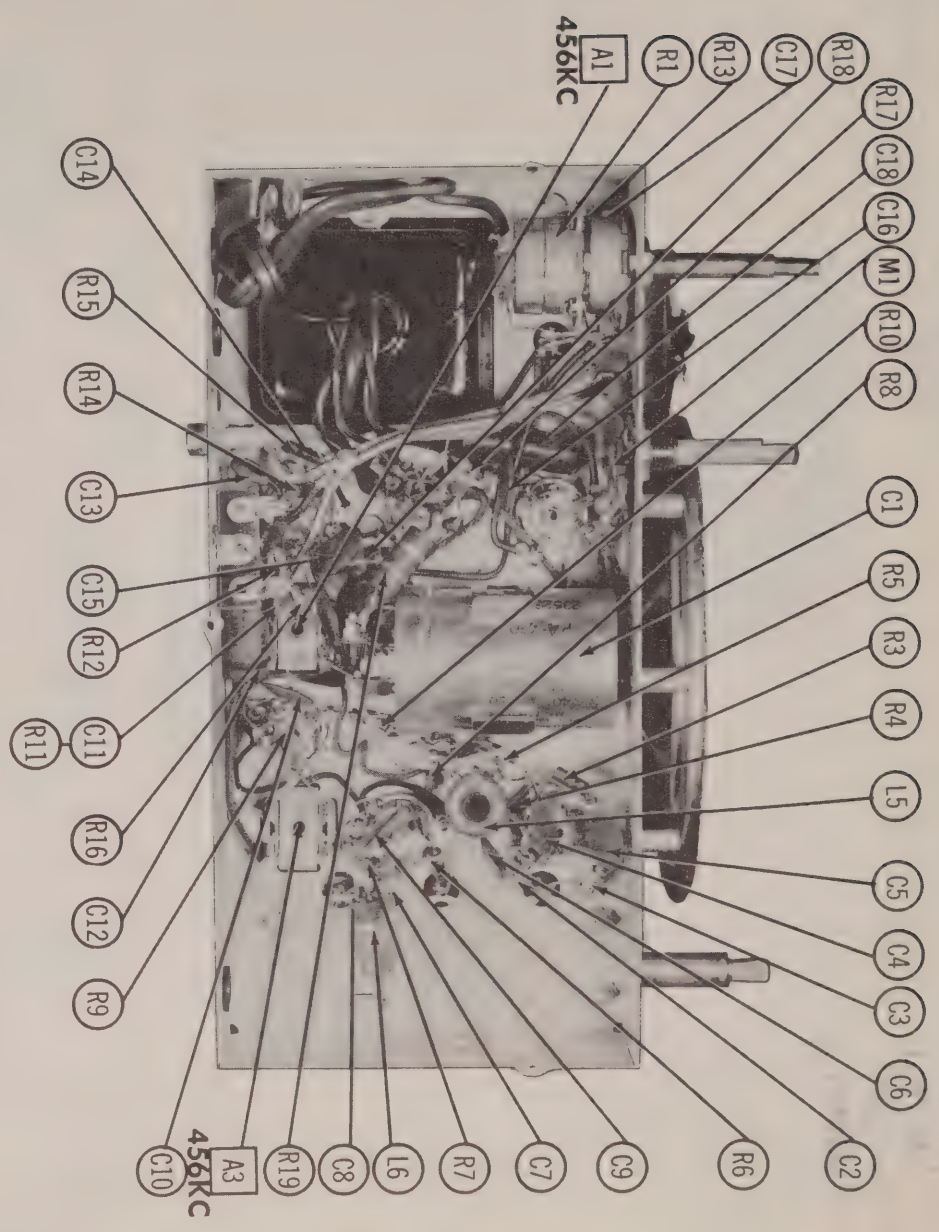
ITEM No.	USE	DC RES.		REPLACEMENT DATA		NOTES
		PRI.	SEC.	SPARTON PART No.	MERIT PART No.	
L2	Loop Antenna	0Ω	.2Ω	AB43592-2		Used only in console models.
L3	Loop Antenna			PA5250-11		
L4	Ant. Loading Coil			AA6616-3		Used only in console models.
L5	RF Coil	70Ω	3.1Ω	AA6412-1	BC-382	
L6	Osc. Coil	.6Ω	5Ω	AA6411-1	BC-397*	
L7	Input IF	13Ω	13.5Ω	AB42201-3	BC-352	
L8	Output IF	13Ω	13.5Ω	AB42201-3	BC-353	

* Drill mounting hole.

MISCELLANEOUS

ITEM No.	PART NAME	SPARTON PART No.	NOTES
M1	Switch		Radio - Phono.
M2	Tuning Capacitor	PB40415	
	Knob	PA5659-1	Off/On Volume (Maroon) Models 350 & 1300.
	Knob	PA5659-2	Off/On Volume (Green) Models 351 & 1301.
	Knob	PA5660-1	Tone (Maroon) Models 350 & 1300.
	Knob	PA5660-2	Tone (Green) Models 351 & 1301.
	Knob	PA5661-1	Switch & Dial (Maroon) Models 350 & 1300 (2 Used).
	Knob	PA5661-2	Switch & Dial (Green) Models 351 & 1301 (2 Used).

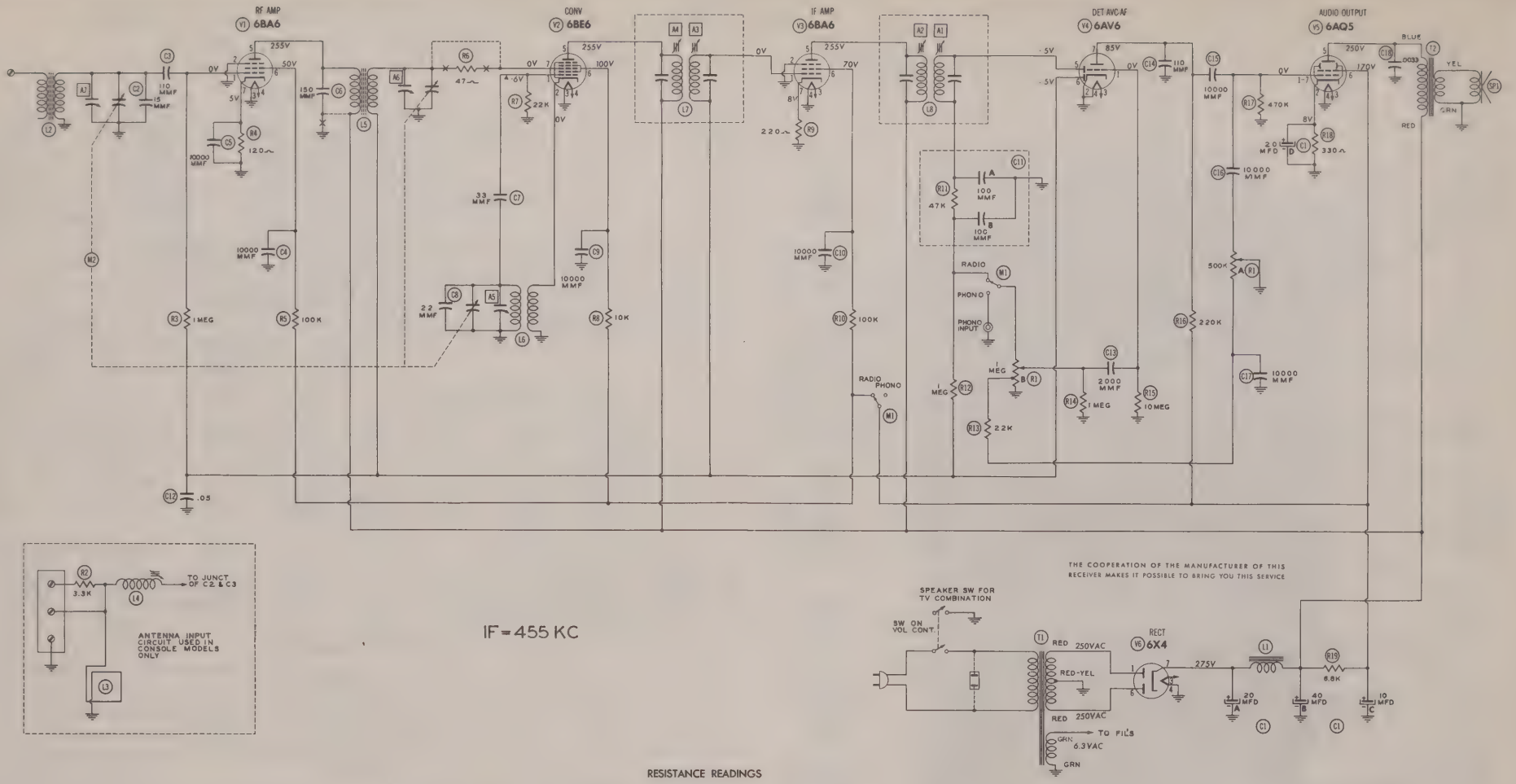
CHASSIS—BOTTOM VIEW



SET 197 FOLDER 12

SPARTON MODEL 350 (Ch. 6L3)

SPARTON MODEL 350 (Ch. 6L3)



RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	6BA6	2.5Meg	0Ω	0Ω	.1Ω	#385Ω	#100KΩ	120Ω
V 2	6BE6	22KΩ	5Ω	0Ω	.1Ω	#330Ω	#10KΩ	1.5Meg
V 3	6BA6	1.5Meg	0Ω	.1Ω	0Ω	#330Ω	#100KΩ	220Ω
V 4	6AV6	10Meg	0Ω	.1Ω	0Ω	.6Meg	1.5Meg	#230KΩ
V 5	6AQ5	470KΩ	330Ω	.1Ω	0Ω	#710Ω	#6.8K	470KΩ
V 6	6X4	132Ω	0Ω	.1Ω	0Ω	0Ω	142Ω	140KΩ

▲ TAKEN WITH VACUUM TUBE VOLTMETER.
MEASURED FROM PIN 7 OF V6.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

3924 MEADE ST.
DENVER, COLORADO

TRUETONE
MODEL D2145

TRUETONE
MODEL D2145

TRADE NAME	Truetone Model D2145
SUPPLIER	Western Auto Supply Co., 2107 Grand Ave., Kansas City, Mo.
TYPE SET	AC Operated Radio-Phono Combination Superheterodyne Receiver
TUBES (Five)	Types 12BE6 Conv., 12BA6 IF Amp., 12AT6 Det-AVC-AF Amp., 50C5 Audio Output, 35W4 Rectifier.

POWER SUPPLY 105-125 Volts AC - 60 Cycle RATING .22Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST 540-1600KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer, if available. If not, connect a .1MFD capacitor in series with low side of signal generator and B-.
Loop should be maintained in same relative position to chassis as when receiver is in cabinet.
Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
To set pointer turn tuning gang fully closed and set pointer parallel with base of dial at low frequency end.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to stator of antenna section of tuning gang. Low side to B-.	455KC (400~Mod)	Tuning gang fully open.	Across voice coil.	A1, A2, A3, A4	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
2.	"	"	1650KC	"	"	A5	"
3.		Loop	1500KC	Tung to 1500KC signal.	"	A6	Replace chassis and loop in cabinet. Fashion a loop of several turns of wire and radiate signal into loop of receiver. Check to see if 1500KC signal is received at 1500 on dial. If not, remove chassis, make compromise adjustment of A5 and replace. Repeat if necessary, until 1500KC signal coincides with 1500 on dial, then adjust A6 for maximum output at 1500.

FOR SERVICE INFORMATION ON RECORD CHANGER UNIT SEE V-M MODEL 950-PHOTOFACT SET #107-FOLDER #13-OR RECORD CHANGER MANUAL CM-3.

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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PARTS LIST AND DESCRIPTIONS

TRUETONE MODEL D2145

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: TRUETONE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RTMA BASE TYPE	INSTALLATION NOTES
V1	Converter	12BE6	12BE6	7CH	
V2	IF Amplifier	12BA6	12BA6	7BK	
V3	Det.-AVC-AF Amp.	12AT6	12AT6	7BT	
V4	Audio Output	50C5	50C5	7CV	
V5	Rectifier	35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: TRUETONE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C1A	30	150	508147	PRS150/30-20		EDL3215		2N513	TVA-2421	Red
B	20	150								Blue
C2	100	500	512503	1468-0001	D6-101	5W5T1	GPIK-101	MC235	1FM-31	
C3	.05	400	512028	P488-05	DF-503	PTE4S5		PT415	4TM-S5	
C4	100	500	512503	1468-0001	D6-101	5W5T1	GPIK-101	MC235	1FM-31	
C5	.01	400	512010	P488-01	D6-103	PTE4S1	GP2-333-103	PT411	4TM-S1	
C6A	.005		♦505858		♦PC-70		♦1406-01		♦104C4	
B	250									
C										
C7	.005	600	512006	P688-005	DF-503	PTE6D5	GP2-333-502	PT625	6TM-D5	
C8	.05	400	512028	P488-05	DF-503	PTE4S5		PT415	4TM-S5	
C9	.05	400	512028	P488-05	DF-503	PTE4S5		PT415	4TM-S5	
C10	.05	600	512030	P688-05		PTE6S5		PT615	6TM-S5	
C11	.15	400	512040	P488-15		PTE4P15		TP417	4TM-P15	

♦ Items C6A, C6B, C6C, R7A, R7B are combined in one unit.
When replacing items separately C6B and C6C should total 250MMF.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: TRUETONE PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1 Meg	½	509436	Q13-137	AG-63-Z	BSK-70-S	U-53	Volume
B	Shaft		Not Req.	Not Req.	KSS-3	Not Req.	Not Req.	Attach to R1A
B	Switch		Not Req.	76-1	SWB	Not Req.	US-26	Attach to R1A

RESISTORS

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: TRUETONE PART No.	IRC PART No.	NOTES
R2	22KΩ	½	510161	BTS-22K	
R3	3.3Meg	½	510194	BTS-3.3Meg	
R4	150Ω	½	510122	BTS-150	
R5	470KΩ	½	510185	BTS-470K	
R6	10 Meg	½	510197	BTS-10 Meg	

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: TRUETONE PART No.	IRC PART No.	NOTES
R7A	500KΩ	½	♦ 505858		Note
B	500KΩ	½			
R8	200Ω	2			
R9	2200Ω	1	510234	BTA-2200	
R10	27Ω	½	510108		

Note . Some models use a 220Ω resistor in this application.
♦ Items R7A, R7B, C6A, C6B, C6C are combined in one unit.

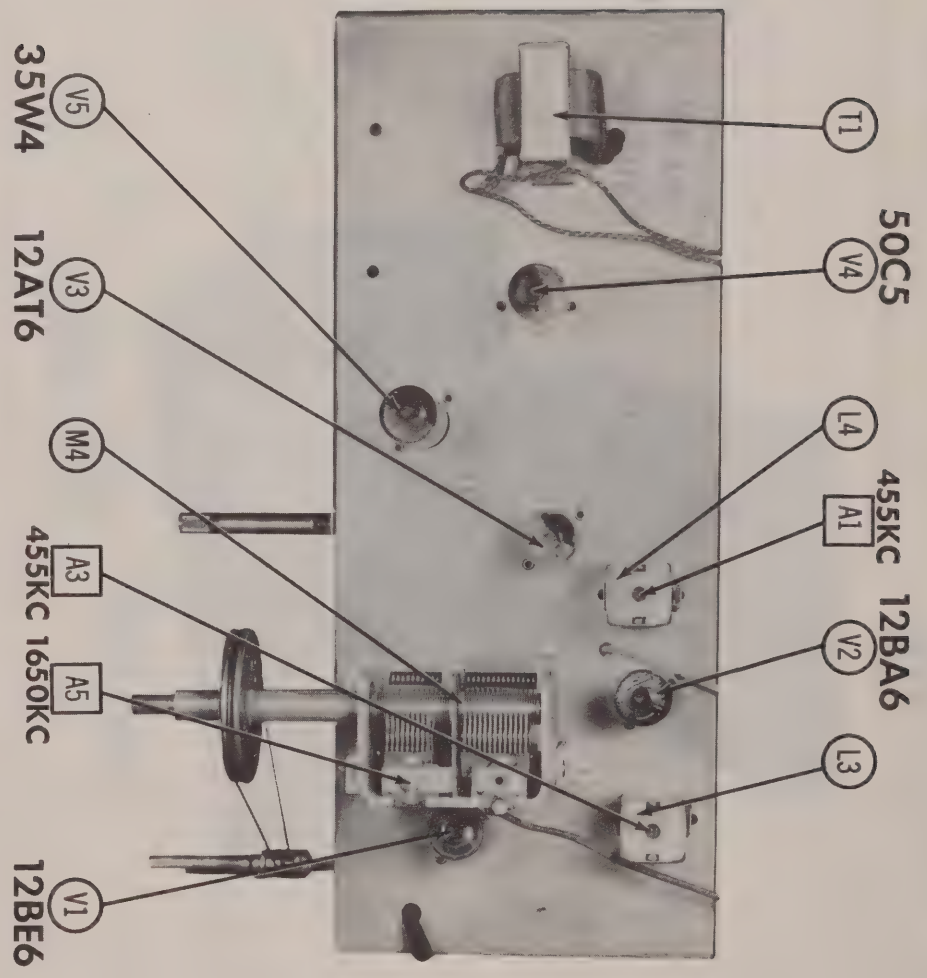
TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: TRUETONE PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	NOTES
T1	2.4KΩ	3Ω	225Ω tap ⓐ 10Ω	.64Ω	509739	A-3330 ①	A-3031 ①	RO-3 ①		① Drill one new mounting hole.

SPEAKER

ITEM No.	RATINGS: SIZE	RATINGS: FIELD	RATINGS: V. C. IMP.	REPLACEMENT DATA: TRUETONE PART No.	JENSEN PART No.	QUAM PART No.	NOTES
SP1	5"	PM	3Ω	C-509741	ST-105 Mod. P5-X	5A07	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA TRUETONE PART No.	REPLACEMENT DATA MERIT PART No.	NOTES
L1	Loop Ant.	0Ω	2.6Ω	509747		Includes 3-35MMF trimmer, part #309899
L2	Osc. Coil	.3Ω	3Ω	506094		
L3	Input IF	21Ω	21Ω	505867	BC-352	
L4	Output IF	21Ω	21Ω	505867	BC-353	

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA TRUETONE PART No.	ASTATIC PART No. CARTRIDGE	ASTATIC PART No. NEEDLE	SHURE PART No. CARTRIDGE	SHURE PART No. NEEDLE	ELECTRO-VOICE PART No. CARTRIDGE	ELECTRO-VOICE PART No. NEEDLE	REMARKS
M1	509896	AC-AG-J	A-AG	W26B	A66U	33	0-2 or S-2	

ASTATIC SHURE AND ELECTRO VOICE NEEDLE LISTINGS SHOWN ABOVE ARE SPECIFIED FOR THE RESPECTIVE REPLACEMENT CARTRIDGES LISTED. FOR ORIGINAL CARTRIDGE NEEDLE REPLACEMENT SEE BELOW.

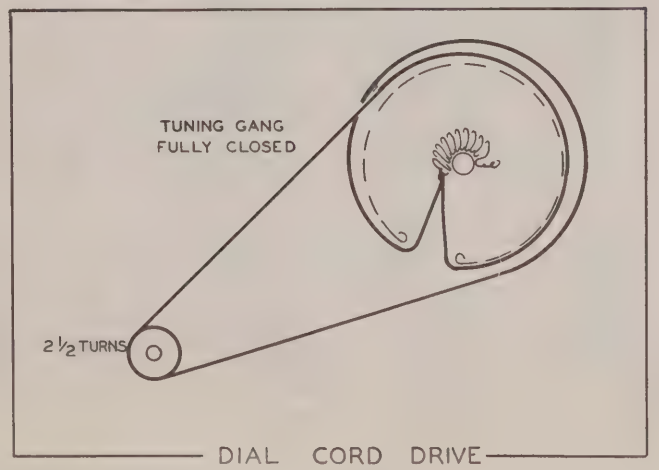
PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

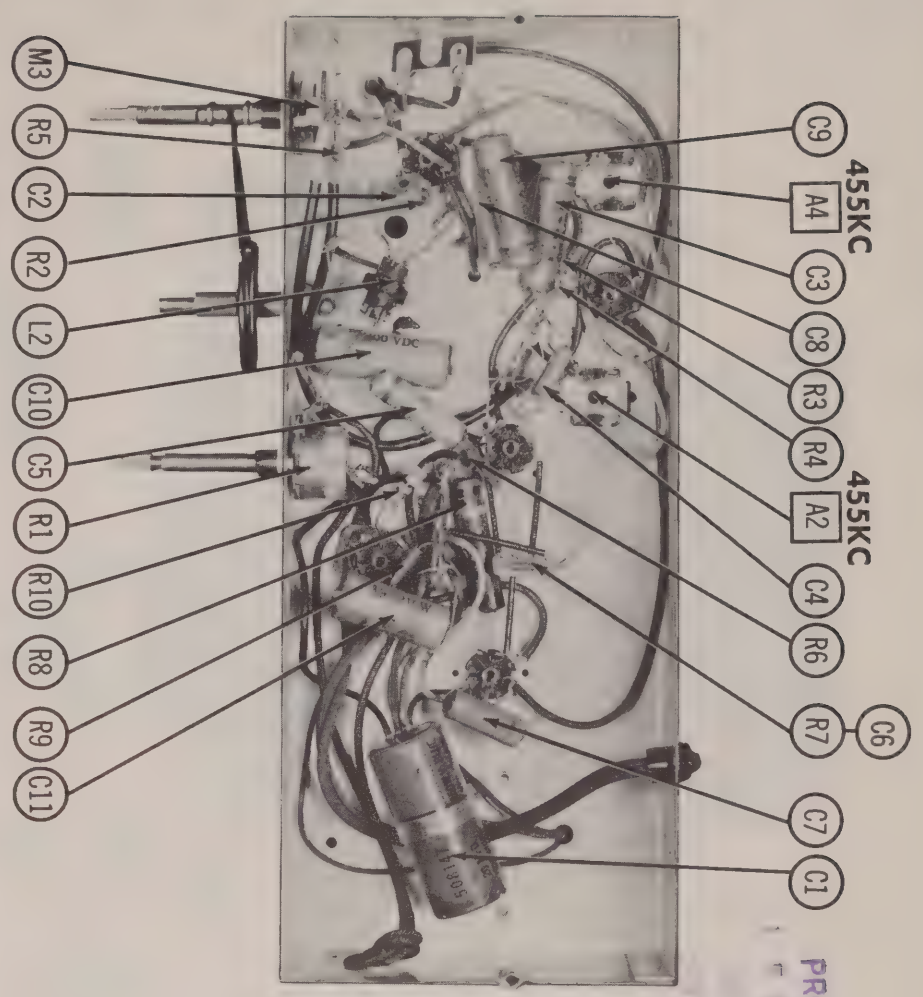
ITEM No.	REPLACEMENT DATA TRUETONE PART No.	WALCO PART No.	JENSEN PART No.	REMARKS
M2	509897	W-30AGA	JP-312	

MISCELLANEOUS

ITEM No.	PART NAME	TRUETONE PART No.	NOTES
M3	Switch	509726	Radio - Phono
M4	Tuning Capacitor	509727	
A6	Trimmer	509899	Antenna Trimmer
	Cabinet Lid	509721	
	Cabinet	509730	
	Knob	509745	Off/On Volume
	Knob	509746	Phono Radio
	Knob	508476	Tuning



CHASSIS—BOTTOM VIEW



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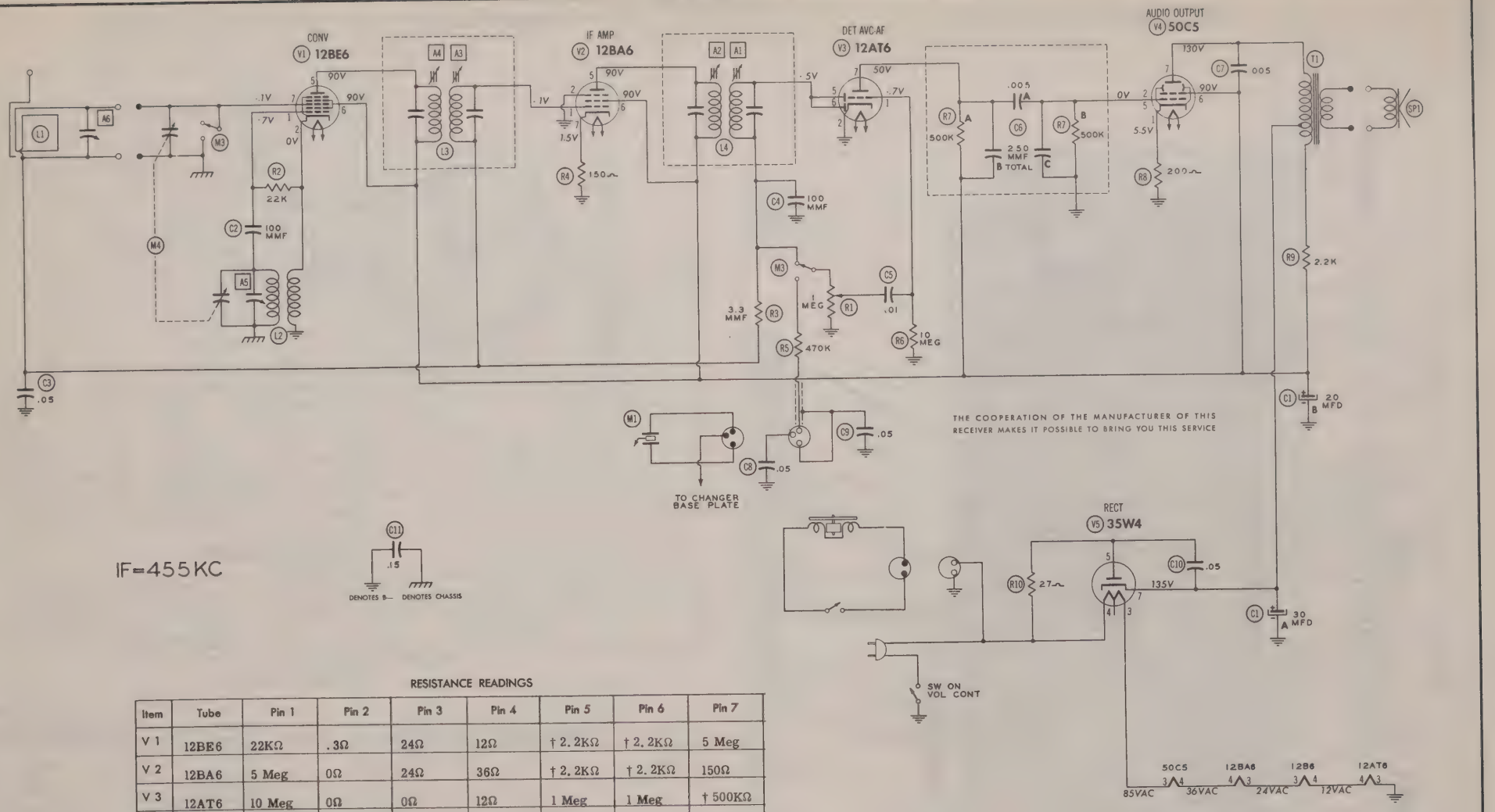

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	12BE6	22KΩ	.3Ω	24Ω	12Ω	† 2.2KΩ	† 2.2KΩ	5 Meg
V 2	12BA6	5 Meg	0Ω	24Ω	36Ω	† 2.2KΩ	† 2.2KΩ	150Ω
V 3	12AT6	10 Meg	0Ω	0Ω	12Ω	1 Meg	1 Meg	† 500KΩ
V 4	50C5	200Ω	500KΩ	86Ω	36Ω	500KΩ	† 2.2KΩ	† 200Ω
V 5	35W4	40KΩ	INF	86Ω	120Ω	150Ω	110Ω	40KΩ

ALL MEASUREMENTS TAKEN IN RADIO POSITION ONLY
† MEASURED FROM PIN 7 OF V5
▲ TAKEN WITH VACUUM TUBE VOLTMETER

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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197-13

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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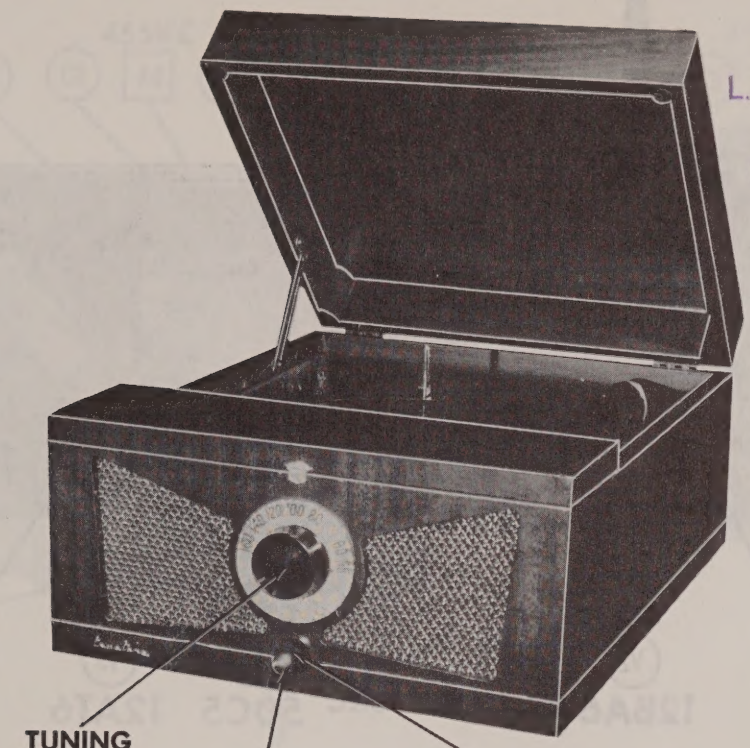
DENVER, COLORADO



TRUETONE
MODEL D2255

TRADE NAME	Truetone D2255
SUPPLIER	Western Auto Supply Co., 2107 Grand Avenue, Kansas City, Missouri
TYPE SET	AC Operated Radio-Phono Combination Superheterodyne Receiver
TUBES (Five)	Types 12BE6 Conv., 12BA6 IF Amp., 12AT6 Det.-AVC-AF Amp., 50C5 Det.-AVC-AF Amp., 35W4 Rectifier
POWER SUPPLY	105-125 Volts AC-60 Cycle
TUNING RANGE—BROADCAST	540 - 1650 KC

RATING .25 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer, If available. If not, connect a .1MFD capacitor in series with low side of signal generator and B-. Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to pin 7 (grid) of 12BE6 (V1). Low side to B-.	455KC (400Ω Mod)	Tuning gang fully open.	Across voice coil.	A1, A2, A3, A4	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
2.	"	"	1650KC	"	"	A5	"
3.		Loop.	1400KC	Tune to 1400KC signal.	"	A6	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.

FOR SERVICE INFORMATION ON RECORD CHANGER UNIT--SEE SIMILAR V-M MODEL 950, PHOTOFACT SET 107, FOLDER 13 OR RECORD CHANGER MANUAL CM-3.

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PARTS LIST AND DESCRIPTIONS

TRUETONE MODEL D2255

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: TRUETONE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RTMA BASE TYPE	INSTALLATION NOTES
V1	Converter	12BE6	12BE6	7CH	
V2	IF Amplifier	12BA6	12BA6	7BK	
V3	Det-AVC-AF Amp.	12AT6	12AT6	7BT	
V4	Audio Output	50C5	50C5	7CV	
V5	Rectifier	35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: TRUETONE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C1A	50	150	520598	PRS150/50-30		BRD5315A		2N520	TVA-2450	Blue.
B	30	150								Red.
C2	33		513028	SI33	D6-330		GP1K-330	UC-5433	5GA-Q33	
C3	.05	400	512145	P488-05	DF-503	PTE4S5		PT415	4TM-S5	
C4A	220									
B	2000									
C	5000		♦509836		♦PC-150		♦1408-01		♦103C4	
D	250									
E										
C5	.02	400	512133	P488-02	DF-203	PTE4S2		PT412	4TM-S2	
C6	.05	400	512145	P488-05	DF-503	PTE4S5		PT415	4TM-S5	
C7	.05	400	512145	P488-05	DF-503	PTE4S5		PT415	4TM-S5	
C8	.05	400	512145	P488-05	DF-503	PTE4S5		PT415	4TM-S5	
C9	.15	400	512157	P488-15		PTE4P15		TP417	4TM-P15	

♦ Items C4A, C4B, C4C, C4D, C4E, R6A, R6B, R6C are combined in one unit. When replacing items separately, C4D and C4E should total 250MMF.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: TRUETONE PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1	1Meg	½	520605					Volume and Switch.

RESISTORS

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: TRUETONE PART No.	IRC PART No.	NOTES
R2	22KΩ	½	510161	BTS-22K	
R3	100Ω	½	510119	BTS-100	
R4	3.3Meg	½	510194	BTS-3.3Meg	
R5	470KΩ	½	510185	BTS-470K	
R6A	6.8Meg	½		BTS-6.8Meg	
B	470KΩ	½	♦509836	BTS-470K	
C	470KΩ	½		BTS-470K	

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: TRUETONE PART No.	IRC PART No.	NOTES
R7	150Ω	½	510122	BTS-150	
R8	1000Ω	1	510237	BTA-1000	
R9	27Ω	½	510108		
R10	33Ω	½	510110		

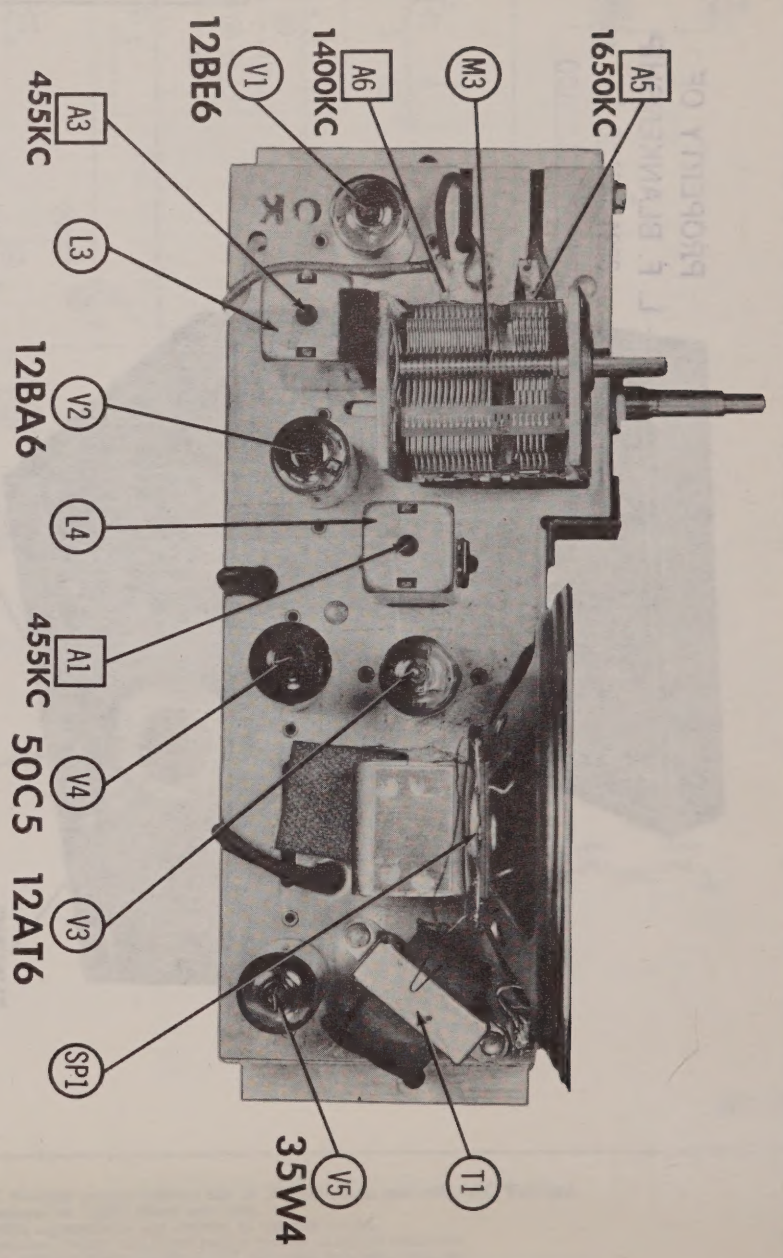
Items R6A, R6B, R6C, C4A, C4B, C4C, C4D, C4E are combined in one unit.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: TRUETONE PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	NOTES
T1	255KΩ	3.4Ω	240Ω tap ⓐ 9Ω	.84Ω	520601	A3330 ①	A-3031 ①	R0-3 ①		

① Drill one new mounting hole.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	TRUETONE PART No.	JENSEN PART No.	QUAM PART No.	
SP1	4"	PM	3.4Ω	520600	ST-113 Mod. P4-X	4A07	

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA		NOTES
		PRI.	SEC.	PART No.	MERIT PART No.	
L1	Loop Antenna	0Ω	.4Ω	520607		
L2	Osc. Coil	1.2Ω	12Ω	509832	BC-397■	
L3	Input IF	17Ω	18Ω	509433	BC-352	
L4	Output IF	17Ω	18Ω	509433	BC-353	

■ Drill mounting hole.

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA							REMARKS
	TRUETONE PART No.	ASTATIC PART No.		SHURE PART No.		ELECTRO-VOICE PART No.		
		CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	
M1	520609	AC-AG-J	A-AG	W26B	A66U	33	0-2 or S-2	

ASTATIC, SHURE AND ELECTRO-VOICE NEEDLE LISTINGS SHOWN ABOVE ARE SPECIFIED FOR THE RESPECTIVE REPLACEMENT CARTRIDGES LISTED. FOR ORIGINAL CARTRIDGE NEEDLE REPLACEMENTS SEE BELOW.

PHONO NEEDLE

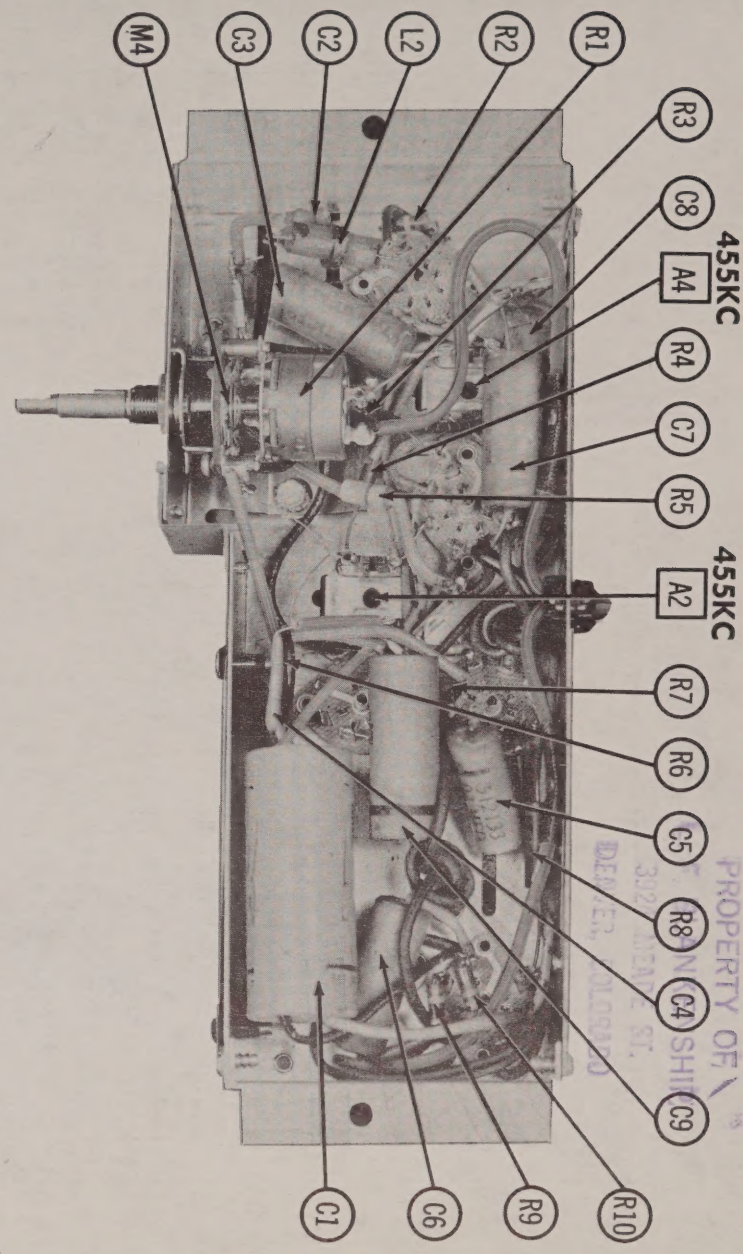
(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA			REMARKS
	TRUETONE PART No.	WALCO PART No.	JENSEN PART No.	
M2	520610	W-5AGS or W-5AGA	A-752 or A-852	

MISCELLANEOUS

ITEM No.	PART NAME	TRUETONE PART No.	NOTES
M3	Tuning Cap.	509827	42-383MMF; 16-106MMF
M4	Switch	520604	Function Selector (Includes Off/On Volume Control #520605.)
	Cabinet	520592	
	Lid for Cabinet	520590	
	Knob, Tuning & Dial Scale	520619-A	
	Knob, Phono-Radio	520603-A	
	Knob, On/Off Vol.	520602-A	

CHASSIS—BOTTOM VIEW



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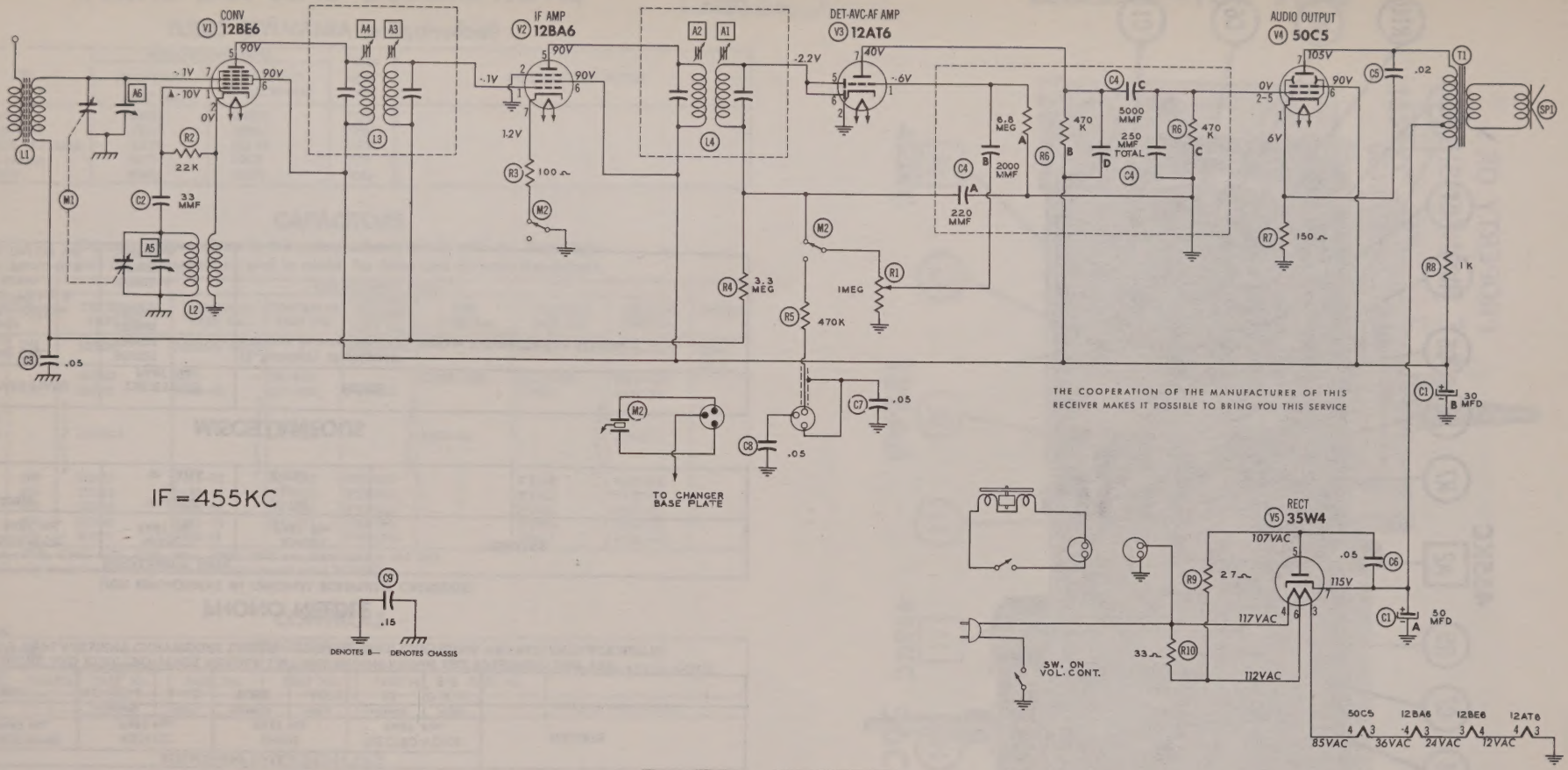
DENVER, COLORADO

TRUETONE MODEL D2255



RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	12BE6	22KΩ	1, 2Ω	24Ω	12Ω	† 1KΩ	† 1KΩ	4Meg
V 2	12BA6	4Meg	0Ω	24Ω	36Ω	† 1KΩ	† 1KΩ	100Ω
V 3	12AT6	6. 8Meg	0Ω	0Ω	12Ω	1Meg	1Meg	† 470KΩ
V 4	50C5	150Ω	470KΩ	36Ω	85Ω	470KΩ	† 470KΩ	† 240Ω
V 5	35W4	150KΩ	150KΩ	85Ω	125Ω	150Ω	115Ω	150KΩ

▲ TAKEN WITH VACUUM TUBE VOLTMETER.
† TAKEN FROM PIN 7 OF V5 .

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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197-14

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.